

RIXTON AND WARBURTON BRIDGE ORDER

THE TRANSPORT AND WORKS ACT 1992

THE TRANSPORT AND WORKS (APPLICATIONS AND OBJECTIONS PROCEDURE) (ENGLAND AND WALES) RULES 2006



RIXTON AND WARBURTON BRIDGE BUSINESS CASE

November 2021

Rixton and Warburton Toll Bridge



Prepared for The Manchester Ship Canal Company Limited Sustainable Investment Business Case 24 November 2021

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Glossary and Definitions

Term	Definition
1863 Act	The Rixton and Warburton Bridge Act 1863.
1954 Act	Transport Charges (Miscellaneous Provisions) Act 1954.
AADT	Annual Average Daily Traffic. This equates to total traffic in a year divided by 365 (or 366 in leap years).
Bridge Abutment	This is the substructure at the ends of the span that the bridge superstructure rests on. There is an abutment at each end to provide vertical and lateral support for the Bridge, as well as acting as retaining walls to resist lateral movement.
Bridge Road	The highway either side of the bridge structure running from the A57 Manchester Road in the north to the Paddock Lane in Warburton village in the south.
Company	The Company means an incorporated company with limited liability under the Companies Act 2006.
Exemptions Register	Exemptions Register means a register of vehicles exempt from tolls in accordance with the Proposed Order.
Free-Flow Tolling	Normally users either register through an account with payments automatically deducted when the facility is used or make a one-off payment via an on-line portal each time the toll facility is used. There is no barrier to ensure payment at the time of use, so these systems rely on powers of enforcement to pursue non-payment Traffic throughput is the same as a normal road, with the only physical items on the road being signage and overhead gantries.
MSCCo	The Manchester Ship Canal Company Limited.
Proposed Order	The Proposed Order is a draft Transport and Works Act Order made under the Transport and Works Act 1992, which MSCCo is applying for in order to authorise proposals in respect of the R&W Toll Bridge.
R&W Toll Bridge	The bridge known as the Rixton and Warburton Bridge, authorised by the 1863 Act and the 1890 Act, together with the Bridge Road and all toll booths or other toll collection facilities constructed on the bridge or the Bridge Road.
ТМВС	Trafford Metropolitan Borough Council.
Undertaking	The Undertaking is the Rixton and Warburton Toll Bridge Undertaking. It includes all statutory and other powers and duties of MSCCo conferred or imposed on MSCCo by or under any provision of the Manchester Ship Canal Acts and Orders 1885 to 2012. It also includes the property, rights, liabilities and obligations, including all lands, works, buildings, machinery, stores and other real and personal property, assets and effects, contractual rights and obligations, and other rights and privileges vested in or enjoyed by MSCCo in respect of the R&W Toll Bridge.
WBC	Warrington Borough Council.

EXECUTIVE SUMMARY

- Vivid Economics were engaged by MSCCo to prepare a report that sets out the current situation and outlines a financially sustainable business plan going forward in respect of the R&W Toll Bridge. It includes steps for delivering the plan, proposals for future toll collection and details the implications of the plan on the future toll level required. The plan was initially developed before the Covid-19 pandemic but has since been updated to reflect the anticipated future as a consequence of this event.
- 2) The 1863 Act authorising tolls "over, along, or upon the Bridge and Roads, or any of them, or any Part thereof respectively" set the maximum toll at 12.5p. MSCCo has historically endeavoured to operate within this constraint but it is now clear that the R&W Toll Bridge has deteriorated to the point where major refurbishment is needed, or risk closure entirely. Similar concerns also apply to the Bridge Road, and the R&W Toll Bridge needs more protection from overweight vehicles.
- 3) Analysis also confirms that the current net revenues, once all costs have been deducted, are negligible. The cost of replacing the toll booth following the arson attack of 2018 alone was equivalent to 4 years of surplus revenues after all costs are deducted. Even with a clean slate approach (i.e. all past losses and debts are set to zero) it is clear a significant increase in the toll is required if a sustainable strategy going forward is to be adopted.
- 4) Without refurbishment the future secure and safe operation of the Manchester Ship Canal is put at risk. No action is not an option. A four-strand strategy has therefore been developed:
- There will be a major capital investment program in respect of the upgrade of the R&W Toll Bridge.
- The Bridge Road will be upgraded in terms of running surface and footpaths, and then maintained going forward on a more consistent basis.
- Measures will be introduced to control vehicle access in terms of weight, height, width, and speed, as well as obtaining powers to enforce these.
- The toll collection system will be upgraded, with free-flow tolling as the preferred option.
- 5) Even with these actions it is also considered prudent to start building up a reserve fund for future major works or even bridge replacement.
- 6) Tolls on private bridges may be increased pursuant to the 1954 Act. However, simply increasing the toll will not deliver the four-strand strategy, and the toll increase needs to be accompanied by a package of other measures. As such, it has been determined that statutory authorisation will be sought by means of a Transport and Works Act Order (TWAO).
- 7) The TWAO will also seek powers to allow the transfer of the Undertaking to a free-standing company for the purposes of future management and operations of the Undertaking.
- 8) The cost of the upgrade program with free-flow tolling is estimated at around £6.5m. The works associated with the upgrade program will impact significantly on users, with any toll increase only being introduced when these physical works are completed.
- 9) Even with a clean slate approach to the finances of the new company, to fund this investment, pay it off in 20 years, and build up a reserve fund, a maximum toll of £1 including VAT, increased at a maximum of CPI minus 1% a year needs to be proposed.

- 10) Sensitivity testing suggests that if the situation is better than expected the headline toll could still be £1.00, but with much larger local discounts and no indexing over time. On the other hand, in a worst case scenario it may not be possible to offer as many discounts as hoped, however in this case, the Undertaking should still remain financially viable.
- 11) Once the upgrade has been implemented and the new toll introduced, it is anticipated that over the following 20 years, 20% of the toll is lost as VAT, 21% covers the cost of capital, 16% covers the upgrade costs, 29% covers operations and maintenance, and 14% covers the reserve fund and financing needs.
- 12) The toll level will be set once a year in April and will not automatically be set to the maximum or increased year-on-year. Instead, the toll level will be defined having regard to the financial needs of the operation and maintenance of the R&W Toll Bridge, with specific reference to the principles outlined in the TWAO as to how toll revenues may be applied.
- 13) For example, should the upgrade costs be noticeably lower or traffic levels higher than expected, a lower toll level could be levied or more trip types could be added to the proposed exemptions register. Such additional exemptions would be in addition to the anticipated 50% local discount that will be offered to those residents in postcodes WA3 6 and WA13 9.



1 INTRODUCTION

1.1 Background

Great Britain has a long tradition of privately financed toll roads and bridges. The first historically significant tolls were constituted by the eighteenth century 'turnpikes', while many toll bridges were also built and financed by local people to benefit their community, often replacing a previously operational small ferry. The toll bridge across the Mersey at Warburton, which first opened to traffic over 150 years ago, was originally just such a toll bridge. There are currently seven other examples of what the Government terms "Bridges on Minor Roads" in England (<u>https://www.gov.uk/uk-toll-roads</u>) in addition to the Rixton and Warburton Toll Bridge (R&W Toll Bridge). These are Aldwark, Catford, Clifton, Kingsland, Swinford, Whitchurch, and Whitney-on-Wye.

While tolling of roads in general is no longer common in this country (the one example being the M6 Toll), the tradition of financing river crossings using revenues raised from tolls has continued into the 21st century, with the recently opened Mersey Gateway at Runcorn/Widnes being one example, and the proposed new Lower Thames Crossing being another. In addition, toll collection is increasing transitioning to free flow electronic collection, with such systems operating at Mersey Gateway, recently introduced on the Tyne Tunnel, and proposed for the new Lower Thames Crossings.

1.2 The Vivid Economics Scope of Work

Vivid Economics were engaged by The Manchester Ship Canal Company (MSCCo), as owner of the R&W Toll Bridge, to prepare an independent report:

- Outlining a business plan for taking the Rixton and Warburton Toll Bridge Undertaking (the Undertaking) forward, for the next 20 years, and beyond, in a financially sustainable manner, ensuring the safe operation of the Manchester Ship Canal.
- Presenting the steps required for delivering the business plan, including indicative costed programs (provided by others) for the R&W Toll Bridge refurbishment and maintenance, along with proposals for toll collection in the future.
- Detailing the implications of these plans on the future toll levels that would be required to deliver the business plan (and associated works).

The R&W Toll Bridge was impacted by an arson attack on the toll booth in 2018, and in early 2020 the world was hit by the Covid-19 pandemic, creating specific impacts on toll facilities including issues of cash handling and declines in traffic due to restrictions on travel. The Undertaking has had to respond to these challenges, including absorbing the impact of these reduced revenues.

Given the unique nature of recent times, much of the analysis, especially related to costs incurred by the Undertaking, pre-dates these impacts. However, the uncertainties of the post-pandemic world, especially in terms of the future impact on traffic levels, is reflected in this report.

In addition to support and input from MSCCo, including those in teams covering project management, engineering, legal, accounting, and planning, this report has also utilised independent expert input from:

- BDB Pitmans LLP on legal matters.
- Walker Sime on cost estimation.
- Wilde Consultants on the residual life of the R&W Toll Bridge.

The overall purpose of this report is to bring together all aspects of the future plans for the Undertaking, economic and technical, into one overarching document.

It should also be noted that MSCCo propose to transfer the Undertaking to a new wholly owned subsidiary company (the Company) once the relevant powers being sought have been obtained. The Company will deliver the future management and operations of the Undertaking, including setting future toll levels, and thus ensuring the future safe operation of the Manchester Ship Canal.

1.3 About the Rixton & Warburton Toll Bridge

1.3.1 History

The R&W Toll Bridge is a statutory tolled crossing of the Manchester Ship Canal on the B5159, connecting the A57 with the A6144. It consists of a bridge, Bridge Road, and a toll booth. The Rixton and Warburton Bridge Act 1863 (the 1863 Act) originally authorised the construction of a toll bridge. The Rixton and Warburton Bridge Amendment Act 1867 (the 1867 Act) was focused on enabling further money to be raised when there were early financial difficulties but did not fundamentally change the principles of the earlier Act. The original stone bridge was built on the historic border between Lancashire and Cheshire to replace the ferry service across the River Mersey connecting Warburton to Hollins Green. It was built at a cost of £550, recoverable through the imposition of a toll, funded by a private company.

In 1885, Parliament passed The Manchester Ship Canal Act, authorising the construction of the Manchester Ship Canal, a 36-mile inland waterway linking Manchester to the River Mersey at Eastham. The canal was inaugurated in 1894. As a result, the River Mersey was diverted, and its course dried up.

Subsequent legislation provided for the diversion of the existing route, which was implemented by means of a new bridge based on a cantilever steel structure. The diversion was authorised to be a part of MSCCo's Undertaking (the R&W Toll Bridge), including the levying of toll rates and charges. The original stone bridge remains as part of the southern approach road leading to the R&W Toll Bridge which spans across the Manchester Ship Canal.



Figure 1-1 Ariel Photograph of the R&W Toll Bridge and Manchester Ship Canal

Source: MSCCo

1.3.2 The R&W Bridge and the Canal

While the R&W Toll Bridge has no meaningful impact on the operations of MSCCo whilst it remains in good repair, should it start to fall into disrepair, this could have a significant impact. MSCCo have identified the first potential impact on the canal beneath, and the vessels using it, would be the risk of parts of the R&W Toll Bridge falling from the structure. This would present two potential hazards:

- Parts falling onto vessels navigating under the R&W Toll Bridge which could cause damage to vessels or injury to their crews.
- Parts that had fallen from the R&W Toll Bridge onto the bed of the canal could reduce the available depth of water for navigation, which could lead to damage to the hulls of vessels navigating under the bridge and in a worst case, even breaching a vessel's hull.

Vessels navigating under the bridge carry hazardous chemicals, including propylene (an inflammable liquified gas). Whilst vessels carrying hazardous chemicals have various levels of containment, the two hazards identified could seriously prejudice that containment.

However, the ultimate hazard would be for the R&W Toll Bridge to collapse, blocking the canal, with the most serious case being for this to happen when a vessel was passing underneath.

MSCCo is the harbour authority for the Harbour and Port of Manchester, which includes the Manchester Ship Canal. Its primary consideration is navigational safety. As such, it cannot allow events, such as those described above, to arise, and consequently, if the R&W Toll Bridge cannot be maintained in good repair for use by traffic, it would have to be closed.

1.3.3 Collection of Tolls

The 1863 Act authorised levying tolls by the Undertaking for passing "over, along, or upon the Bridge and Roads, or any of them, or any Part thereof respectively", with a maximum one-way toll of 12.5p (i.e. two and a half old shillings). This original 1863 toll level equates to over £15 in today's prices. As 0.5p coins were withdrawn from circulation in 1984, and currently only cash is accepted, the toll for a single trip is set at 12p.

In addition, for frequent users, two multi-trip options are offered:

- 25p for a day pass i.e. an unlimited number of trips over the bridge in a day.
- A year pass (noting the price has varied recently, as there have been various special offers at a lower price to encourage take up and thus speed up the flow of traffic through the toll booth, and adjustments have also been made to reflect the impact of Covid-19).

There is currently a 3t weight limit on the R&W Toll Bridge and the same toll is levied on all permitted vehicles. There are also a number of ad hoc exemptions to the toll. For example, a registered funeral cortege is exempt from the toll. In addition, there are two agreements in place to suspend toll collection, one linked to a request from the local highway authority if there are significant problems on the M6 and one linked to days when Sale Sharks are playing a home rugby match.

Tolls are collected at a toll booth on the south side of the R&W Toll Bridge on the northern edge of the village of Warburton. There is one barrier controlled lane per direction and tolls can only be paid by cash and are collected manually. There is no facility for payment by credit card or other form of cashless payment.

While tolls can legally be collected at any hour of the day and on any day of the week, historically, prior to Covid-19, they have only been collected between the following hours, noting these are approximations:

- 7am-10pm Monday to Friday.
- 8am-10pm on Saturdays.
- 9am-10pm on Sundays (including public holidays).

However, toll collection was temporarily suspended at all times for a period in 2018 while the toll plaza was replaced following an arson attack, although the R&W Toll Bridge remained open to traffic.

1.3.4 Covid-19 Pandemic

During the Covid-19 pandemic, toll collection was either fully or partially suspended to address health concerns related to toll collection by staff and customers. Although again, the R&W Toll Bridge remained open to traffic. These have been:

- 30/3/20 31/5/20 (lockdown 1): zero toll.
- 9/11/20 2/12/20 (tiered local restrictions): zero toll.
- 4/1/21 31/3/21 (lockdown 2): zero toll.
- 31/3/21 16/8/21: one-way toll only.

Outside of these time periods, and at the time this report was written, toll collection has continued as usual (i.e. 12p for a one-way trip, 25p for two-way trip, and annual passes).

While traffic levels on the R&W Toll Bridge have been noticeably lower since the start of the Covid-19 pandemic, there is no obvious impact on traffic of these various changes to toll collection. It appears traffic levels responded to easing or tightening of restrictions rather than the relaxation or implementation of the toll. This suggests the current toll is having no meaningful impact on travel choices in the area.

1.3.5 Role in the Local Transport Network

The route is also used by cyclists as the nearest bridge to the west is the M6 (where cyclists are not permitted to cross), and the nearest bridge to the east is the Irlam Lock swing bridge (5km and 8km east of the R&W Toll Bridge along the north side and south side respectively). Pedestrians can in theory cross the R&W Toll Bridge, but this is not currently encouraged given the very narrow footways on the Bridge Road. There are no bus services running across the R&W Toll Bridge at present, although a bus does pass through the village of Warburton.

There are two local highway authorities in the area, Warrington Borough Council (WBC) and Trafford Metropolitan Borough Council (TMBC). The mid-point of the Manchester Ship Canal and the crest of the R&W Toll Bridge is the administrative boundary between these two Councils.

The Bridge Road are classified as public highway. Nevertheless, Section 46 of the 1863 Act provided that the R&W Toll Bridge is to be maintained and kept in repair and states that:

• "After the Bridge and Roads are completed the same shall be deemed a public Bridge and public Highways, and subject to the Provisions of this Act, all Persons with or without Animal or Carriages shall have free Liberty on Payment of the Tolls by this Act... but the Bridge shall not be deemed a County Bridge so as to make the Counties of Lancaster or Chester, or either of them, liable to repair, light, or watch the same, and shall be maintained and kept in repair by the Company."

Figure 1-2 The R&W Toll Bridge Toll Booth from the Southside



Source: Vivid Economics – September 2019

Figure 1-3 The Approach Road to the R&W Toll Bridge from the North Side



Source: Vivid Economics – September 2019



1.3.6 Increasing the toll

The increase of the toll charges by undertakings for toll bridges such as the R&W Toll Bridge (where such increase is sought in isolation from other powers) is currently governed by section 6(2) of the Transport Charges (Miscellaneous Provisions) Act 1954 (the 1954 Act). This permits the submission of an application to the Secretary of State for Transport at any time to revise the toll charges.

Further, section 6(3) of the 1954 Act, states:

• "In making any order on an application under this section, the Minister shall have regard to the financial position and future prospects of the undertaking and shall not make any revision of charges which in his opinion would be likely to result in the undertaking receiving an annual revenue either substantially less or substantially more than adequate to meet such expenditure on the working, management and maintenance of the undertaking and such other costs, charges and expenses of the undertaking as are properly chargeable to revenue, including contribution to any reserve, contingency or other fund and where appropriate, a reasonable return upon the paid up share capital of the undertaking.".

Throughout the long lifetime of the R&W Toll Bridge, an application for a toll increase has never been submitted, although in the past cars were not charged the maximum toll. This is understood to be unique for bridges covered by the 1954 Act.

MSCCo is making an application to the Secretary of State for a Transport and Works Act Order (TWAO) under sections 3(1)(a) and 5 of the Transport and Works Act 1992. Under the TWA 1992, the Secretary of State has broad powers and can, amongst other things, authorise toll increases.

Although the requirements of the 1954 Act do not apply to the application made under the TWA 1992, the underlying principles applicable to toll increases in that Act have informed the approach to setting the new toll under the TWAO.

This Business Case report has been prepared in parallel, and while not all definitions in this report may be identical to the Proposed Order, it is consistent with the principles the Proposed Order seeks to achieve. Therefore, any issues specifically related to the Proposed Order should be considered by reference to that document, rather than this one.

Toll indexing, which can be included in powers sought pursuant to a TWAO, is included as part of the business plan and within the TWAO procedure. In line with the consultation in 2014, the indexing is based on 1% below inflation, noting CPI will be used rather than RPI as this is the current official Government measure of inflation, and the TWAO allows for any future replacement of CPI by other official measures of inflation.

While this indexing of tolls to CPI will be applied to calculate the theoretical maximum toll, the actual level of the toll, and manner in which tolls will be set each year, will not be an automatic process, and is discussed later in this report.

1.3.7 Summary of Key Events

The table below outlines key events since the R&W Toll Bridge was first operational in the 1860s to the autumn of 2021.

Table 1-1 Chronology of Key Events

Year	Event
1860s	Acts for the bridge including maximum toll level at two and a half shillings - old stone bridge operational.
1880s and 1890s	Various Manchester Ship Canal Acts, Ship Canal opens, and the R&W Toll Bridge replaces stone bridge.
1954	Transport Charges (Miscellaneous Provisions) Act.
1960	The section of M60 over the Manchester Ship Canal to the east of the bridge opens (then called the M62).
1963	Oldest official record of the car toll rate, which was 5p, and noting at this time the bridge still allowed heavy vehicles at 12.5p.
1963	The first bridge of the Thelwall Viaduct on the M6 opens to the west of the bridge.
1971	Tolls are decimalised, but the values remain unchanged.
1980	Section 271 of the Highways Act 1980 introduced including provisions for the transfer of rights for toll highways.
1981	Toll for cars is increased from 5p to 10p, heavy vehicles were 12.5p.
1984	In December the 12.5p toll is cut to 12p due to abolition of 0.5p coins.
1987	Manchester Ship Canal is privatised.
1992	Transport and Work Act (TWA) introduced as a way of requesting authorisation to the Secretary of State for works on rail transport, tramway, inland waterway and harbour infrastructure.
1995	The second bridge of the Thelwall Viaduct on the M6 opens.
1998	The last major bridge refurbishment occurs (£1.7m). This cost is still being depreciated in the MSCCo accounts.
2001	From 1st January all vehicles set to a toll of 12p.
2002-05	Major maintenance works occur on the Thelwall Viaduct.
2003	VAT is imposed on tolls (February) but tolls paid by users remain unchanged. This resulted in a significant decline in revenues for the Undertaking.
2014	Memorandum of Understanding (MOU) signed with Warrington Borough Council in relation to the lifting of the toll when there are severe problems on the M6.
2017	To assist in the flow of traffic at the toll booth, in September the bridge started operating free for users for 3 hours (5pm to 8pm) on certain Fridays when the Sale Sharks rugby team were playing at home. The lost revenue was compensated by the Sale Sharks Rugby Club.
2018	The toll booth was vandalised by fire and was temporarily out of operation. This resulted in a significant additional cost and a decline in revenues for the Undertaking.
2019	Website for the R&W Toll Bridge is launched, and while annual passes had been available for some time, a series of discounts and offers were introduced to try and encourage greater take up of this product to assist in the flow of traffic at the toll booth.
2020/2021	Toll collection temporarily suspended on several occasions during the Covid-19 Pandemic, significantly reducing revenues, although normal operations have recommenced since August 2021

Source: Vivid Economics and MSCCo

1.4 A Sustainable Strategy Going Forward

1.4.1 The past to the present day

Traditionally, MSCCo has always tried to operate and maintain the R&W Toll Bridge within the constraints of collecting a maximum toll of 12.5p. Through the last few decades of the 20th century, despite costs continually increasing, this strategy was adopted because it minimised the impact of this responsibility on MSCCo while keeping tolls low for users.

This was possible through a combination of:

- Growth in car ownership and use in the UK.
- Some toll growth (car tolls increased from 5p in 1963 to 12p per trip by 2001).
- Minimising costs of refurbishment, maintenance and equipment investment.

In recent years however, the situation has changed:

- Traffic growth has slowed relative to the very high levels seen in the 1980 and 1990s, and recent traffic levels, even before Covid-19, indicate a modest decline in traffic levels.
- The introduction of VAT on the toll in 2003 meant revenues to MSCCo were, at a stroke, reduced significantly. The loss of the 0.5p coin has further eroded revenues.
- The "cap" of 12.5p has been reached for all vehicles, so no further toll increases on cars can be introduced.
- Meanwhile operating costs have continued to grow, with the vast majority of costs being salary based and hence broadly correlated with inflation. Maintenance and refurbishment costs have also increased as age and wear and tear related damage increases.

While this strategy has delivered very low tolls for users over recent years, it is now acknowledged by MSCCo that this previous strategy is now unsustainable for the R&W Toll Bridge, as it is clear that:

- The condition of the R&W Toll Bridge has deteriorated to the point where a major refurbishment is needed. While the bridge currently meets minimum requirements, Wilde Engineers classified it as poor condition with urgent remedial works required. The Bridge Road suffers from potholes which are expensive to fix in the current situation and a long term solution is required.
- Similar concerns apply to the Bridge Road. Potholes are a major ongoing problem and access on foot to cross the bridge is very difficult.
- The R&W Toll Bridge needs more robust protection from overweight vehicles. However, at the same time, MSCCo are aware of the fact that allowing controlled access to a small select group of larger and heavier vehicles, such as fire tenders or buses, would deliver significant social benefits.

1.4.2 The Way Forward

Without refurbishment of the R&W Toll Bridge the future secure and safe operation of the Manchester Ship Canal is at risk. This could risk closure of the bridge altogether. As such, no action is not a feasible option going forward. As a consequence, a capital investment strategy has been developed as follows:

• There will be a major capital investment program in the R&W Toll Bridge to reverse the decline of its condition, including a focused program of strengthening to allow a general traffic weight limit of 7.5t.

• The Bridge Road will also be upgraded, both in terms of running surface and footpaths. In addition, physical measures will be implemented.

Despite this investment similar investments will now be needed every 20 years, and hence the cost of this major capital program needs to be paid back over a 20-year period.

Further, the toll collection system needs to be upgraded to meet the demands of current traffic levels, especially in peak periods, and meet the expectations of stakeholders in the 21st century. MSCCo are therefore requesting changes to the tolling powers to allow free-flow electronic tolling, including the potential for interoperability with other local toll facilities (such as the Mersey Gateway and Mersey Tunnel). The issue of future tolling methods and mechanisms is discussed further in Chapter 2 of this report.

As part of this program, MSCCo also wish to acquire powers to set and robustly enforce height, width, weight, and speed on the R&W Toll Bridge, further protecting the structure and thus ensuring it remains open for use. Vehicles of social value will be exempt from the weight limit including emergency service vehicles and bus services. Such vehicles would then be allowed to use the R&W Toll Bridge for free. It is also intended that an Exemptions Register will be established and reviewed annually at the same time that toll levels are reviewed, and that these would follow the spirit of those currently offered.

Finally, even with the proposals being put in place, it has to be accepted that the R&W Toll Bridge is now very old and it is prudent to consider building up a reserve fund to assist with any future major works. A new replacement bridge and bridge abutments have been estimated at a cost of £15m and MSCCo have set a target for the Undertaking to build up a reserve fund of no more than 30% of that estimated cost in 30 years.

1.4.3 The Level of Toll Required

The current revenue levels raised from the toll at 12p cannot fund this investment program. As discussed later, tolls will need to be increased to cover the required significant major capital investment program.

MSCCo are therefore seeking an increase in the "maximum toll", currently set at 12.5p one-way, to £1.00 one-way (along with future indexing at inflation minus 1% percent). However, this will be the maximum permitted, and the toll levied could be lower. It will not be implemented until the improvement works are complete, which is likely to be at the earliest, Q4 2024.

Further, during the major capital investment program and the associated disruption to users which may involve one-way operation over the R&W Toll Bridge, MSCCo will seek to put in place temporary concessions during the construction period. The precise nature and duration of these concessions will be developed and agreed with stakeholders when full details of the upgrade program are agreed with the contractors. They are currently anticipated to involve the total suspension of all tolls for the period of the works on the R&W Toll Bridge.

The business case for this strategy, along with the justification for the new maximum toll of ± 1.00 inc. VAT and with indexing over time, can be found in Chapter 6 of this report.

2 STAKEHOLDER CONSIDERATIONS

2.1 Introduction

MSCCo have always been aware that the R&W Toll Bridge operates within a wider transport network and its use, while delivering benefits to many, does inevitably lead to some negative impacts for some. Achieving the correct balance between these various interests has always been a concern, and MSCCo want such issues to be reflected in any strategy adopted by the Undertaking going forward. This chapter considers a number of stakeholder issues, and ends with a discussion as to how any new toll system can assist in meeting the wide spectrum of existing and future interests and needs.

2.2 The Warrington Memorandum of Understanding (MOU)

MSCCo is an important part of the network of strategic transport providers in the region and maintains a close working relationship with all the highway authorities in the region, including those either side of the bridge (WBC and TMBC). An example of this joint working is the 2014 Memorandum of Understanding (MOU) signed between WBC and MSCCo which is aimed at encouraging closer collaboration: *"in order to deliver the best solution for all end users"*. Specifically, the MOU states the parties wished to:

• "work together to identify ways of minimising disruption to the Borough's local road network when bridges that cross the Manchester Ship Canal are swung; whilst at the same time, optimising the movement of freight by water".

While the R&W Toll Bridge is not one of these swing bridges, the same MOU also had a section on "Highways Agency Diversions" that considered *"extreme cases, (such as the closure of the Thelwall Viaduct) where the majority of vehicles need to divert through Warrington"*. In that regard, the MOU states:

• "Additionally, during these times of extreme congestion, consideration would be given to opening the Warburton Bridge toll [R&W Toll Bridge] so that vehicles could drive straight through without paying the charge, in order to reduce its impact on congestion".

We understand that, to date, every request from WBC to MSCCo to lift the toll temporarily as per the MOU, once received by MSCCo, has resulted in the toll being lifted.

2.3 Local Government and MP Consultation

As one might expect, given that MSCCo is a major local land owner and operator of regionally important economic infrastructure including the Manchester Ship Canal, and the two local councils in the area (WBC and TMBC) are responsible for the highways in the area, there is close and ongoing dialogue across a range of issues, including the R&W Toll Bridge. This often includes engagement with a range of local stakeholders, including those of local government and Members of Parliament (MPs), whose latest views, taken from the August 2021 consultation, can be summarised as follows:

- Warrington Borough Council (WBC): Supportive of improving the toll collecting system in order for there to be a more efficient way of collecting tolls and therefore reduce delays at the toll booth. Supports the proposals for improvements to the R&W Toll Bridge and Bridge Road, particularly the strengthening of the R&W Toll Bridge to allow buses to use it. However, WBC oppose the scale of the toll increase.
- Trafford Metropolitan Borough Council (TMBC): Supports geographical discount proposals and annual passes, as well as exemptions of specific vehicles, including emergency services, public transport, cyclists and pedestrians. Supports the overall upgrades to the R&W Toll Bridge infrastructure.

- Lymm Parish Council: Welcomes the proposals for strengthening the R&W Toll Bridge and for free-flow tolling. Opposes the scale of the toll increase, despite it having been capped for many years.
- **Rixton with Glazebrook Parish Council:** Objects the toll increase and requests that their local residents are considered in the geographic discount scheme.
- Members of Parliament (MPs): One MP and several councillors responded to the consultation, most of which were opposed to the scale of the toll increase. However, there was a general consensus in favour of moving to free-flow tolling which would ease congestion in the local area, as well as improving the R&W Toll Bridge infrastructure.

For further details of these responses and the stakeholder consultation that has taken place, reference should be made to the Rixton & Warburton Toll Bridge Consultation Feedback Report, which can be found on the R&W Toll Bridge website.

2.4 General Public Comments and the Website

2.4.1 Contact Log

Since early 2013 MSCCo have been keeping a log of contact made by the general public regarding the R&W Toll Bridge. The various comments to the end of December 2019 (i.e. just before the start of the Covid-19 pandemic) can be broadly summarised as follows:

- 43 on the number of potholes or general road surface condition on the Bridge Road (including claims for compensation related to pothole damage to their vehicles).
- 38 on traffic conditions after the arson attack on the booth (mostly favourable to the free-flow conditions in the absence of the need to stop and pay a toll).
- 28 on delays arising from stopping to pay the toll.
- 19 regarding toll booth staff performance or behaviour.
- 19 on the lifting tolls during other road closures or major incidents (both favourable when it occurs and unfavourable when they felt is should have happened but it did not occur).
- 7 related to being asked to pay the toll before 7am (on the mistaken belief the toll could not be collected before that time of the morning, as mentioned previously, the toll can be collected at any time of day).
- 7 on the temporary closure of the R&W Toll Bridge to reinstate the toll booth after the arson attack.
- 4 were on use of the R&W Toll Bridge by trucks and the weight limit.

There are also another 46 which are more general, but which tend to reflect concerns over the principle of a toll, delays and pollution.

As can be seen from the above, the major cause of complaint from users relates to the problems that arise as a consequence of queues that form at the toll collection booth, which are mostly linked to the manual collection of the toll. Potholes on Bridge Road, which cause damage to vehicles, is the next most common reason for complaint.

There are also a significant proportion of comments that relate to general unhappiness with the toll, with many refencing issues around delays, the related congestion, and the belief a toll should not be charged in principle.

A reasonable proportion of comments relate to lifting the toll during road closures or incidents elsewhere on the network, noting some of these are in fact positive responses in relation to MSCCo's actions for doing so.

2.4.2 August 2021 Consultation

Following the publishing of the Sustainable Investment Plan, the public were invited to provide comments on the Plan in August 2021. There were 72 responses from the public and 3 from local businesses or societies:

- In general, most people were strongly in favour of the proposed infrastructure upgrades to the R&W Toll Bridge, as well as the introduction of free-flow tolling.
- The majority of opposition focused on the scale of the toll increase, although there were also comments related to legal powers to levy a toll and the use of past revenues.

Further details on this non-statutory consultation can be found in the Rixton & Warburton Toll Bridge Consultation Feedback Report, which can be found on the R&W Toll Bridge website.

2.4.3 The Website

In the spring 2019 MSCCo also launched a website for the R&W Toll Bridge that:

- Provides a portal for users to purchase the annual pass.
- Provides a portal to a user survey which assists MSCCo in planning for the future of the R&W Toll Bridge.
- Allows users to register to receive regular information updates.
- Provides a portal to contact MSCCo on R&W Toll Bridge related issues.
- Includes background information on the R&W Toll Bridge including the Terms and Conditions of use.

The website can be found at the following location: <u>https://www.warburtontollbridge.co.uk/</u>.

2.5 Air Quality in the Village of Warburton

Defra requires each local authority to measure air pollution and predict how it might change in the following years. For places where air quality objectives are not likely to be achieved, an Air Quality Management Area (AQMA) must be declared. Both of the local authorities closest to Warburton village have declared AQMAs. However, the R&W Toll Bridge is not located within any of these, with the nearest located approximately 3.5km away.

TMBC is within the Greater Manchester Combined Authority (GMCA). It declared an AQMA in 2005 following exceedances of the annual mean objective for nitrogen dioxide (NO₂). The extent of the AQMA was amended in 2016 and primarily covers main roads in and out of Manchester (see Figure 2-1). WBC have also declared AQMAs owing to exceedances of the annual mean NO₂ air quality objective. One surrounds the M6, M62 and M56, whilst the other encompasses link roads and the town centre ring road (see Figure 2-2).

The nearest local authority air quality monitoring station is approximately 3km from the R&W Toll Bridge. At this distance, monitored concentrations are unlikely to be representative of those in the vicinity of the R&W Toll Bridge, and it is therefore not possible to identify the exact pollutant levels in the vicinity. However, owing to the nature of traffic around and at the approaches to the toll collection booth, the area is likely to experience elevated levels of pollution during peak hours. Some stakeholders, including the highways authorities, have raised this as an issue with MSCCo.

Figure 2-1 TMBC AQMA



Source: Defra, UK Air, Air Information Resource, https://uk-air.defra.gov.uk/aqma/details?aqma_ref=84



Figure 2-2 WBC AQMA

Source: Warrington Borough Council, Air Quality and Pollution, https://www.warrington.gov.uk/airquality

However, with the implementation of a free-flow tolling system, or any system that reduces congestion at the toll booth, it would be reasonable to expect that vehicle emissions would be reduced, leading to improvements in local air quality. Additionally, the proposed infrastructure improvements to the R&W Toll Bridge would better enable pedestrians and cyclists to use the route, which might encourage more people to choose an active mode travel as their primary mode choice. This could reduce the number of vehicles on the road and therefore reduce the amount of emissions.

2.6 Tolling

2.6.1 Current Terms and Conditions

The toll for the R&W Toll Bridge is currently collected at a small barrier-controlled booth during what are effectively daylight hours and staff can only accept cash as there is currently no facility for collecting credit card or other cashless forms of payment. The peak throughput can get to around 600 vehicles an hour per direction, which is at the upper end of capacity for a cash-based barrier system. However, with only one lane per direction, even the smallest issue or delay in paying can quickly result in the build-up of a queue on the Bridge Road.

In the past there has been some confusion over which users are or are not exempt from the toll (the legislation allows the toll to be levied in principle on all users of the bridge). To address this, in 2019, when the R&W Toll Bridge website was launched, MSCCo included clarification on the terms and conditions of use. Section 3.3 of these terms and conditions states:

"As of the date of these Terms and Conditions, the following types of Motor Vehicles are permitted to cross the Bridge free from the payment of the Toll:

- motorcycles, mopeds and scooters
- funeral cars and associated Motor Vehicles in the funeral procession
- liveried emergency service Motor Vehicles including ambulances, fire engines and police patrol vehicles
- public transport Motor Vehicles
- armed forces Motor Vehicles
- Motor Vehicles driven by employees of the Company on official duty on display of their identity pass."

It is not currently anticipated that these exemptions would significantly change in the future, although blue badge holders are included in the TWAO exemptions. Going forward, a more formal Exemptions Register will be established. Different toll collection technologies may also require some minor amendments. The business plan in this document is consistent with these current terms and conditions.

2.6.2 A Local User Discount

Both WBC and TMBC have confirmed their support for toll discounts for local residents and high frequency users. However, it should be remembered that any discount offered means a higher headline toll for others, as the business case is driven by a need to raise a certain amount of revenue each year.

Despite a high frequency discount already being offered (i.e. daily tolls capped at two trips no matter how many times the bridge is crossed, reflecting the approach of the current 25p day pass), MSCCo are considering additional geographical discounts, with the current proposal of a 50% discount for residents of postcodes WA3 6 and WA13 9. This business case highlights the impact of such discounts on the toll level. Other discounts and exemptions may be possible in the future, so long as they do not have a meaningful impact on the overall business case, and these will be considered on an ongoing basis.

2.6.3 Free Flow Electronic Toll Collection

While the current situation for toll collection is not ideal from a vehicle volume throughput perspective, it is low cost. It has therefore been considered the best option to date given the very low value of the toll. However, toll technology has advanced significantly in recent years. Given that the toll collection is clearly the source of many of the complaints from users, MSCCo has therefore looked into ways to:

- Widen the methods of payment to include cashless options.
- Minimise delays related to the collection of the toll.

With the support of the two local authorities, MSCCo has proposed the introduction of a free flow tolling system. This has been strongly welcomed by the general public and other stakeholders. This has reinforced the belief of MSCCo that this is the way forward in the 21st century world of digital communication and cashless payments, and, as seen on the Dartford Crossings and the New Mersey Gateway Bridge (noting the first free-flow toll road was the 407ETR in Toronto which came into operation in 1997).

With free-flow tolling, because there is no physical location to pay the toll, users can either register through an online account with payments automatically deducted when the facility is used or make a one-off payment via an online portal each time the toll facility is used. In addition, as provided on other free-flow toll facilities, such as the Mersey Gateway, at least one option for payment that does not require IT equipment or skills will be included, such as payment over the phone and payment at "payzone" outlets.

As there is no barrier to ensure payment at the time of use, these free-flow systems rely on powers of enforcement to allow the pursuit of motorists who do not pay (normally in a manner similar to pursuit of non-payment of a parking ticket). Penalties for non-payment are usually defined against two criteria:

- It recovers the additional costs incurred pursuing the outstanding revenues.
- It is high enough to discourage non-payment in the first place. As such, they are usually significantly higher than the toll, and increase over time with non-payment.

However, there is a cost to recovering these revenues and therefore normally there is a "grace period" for motorists to make the correct payment. For example, on the Mersey Gateway, drivers have until midnight the day after their crossing to pay, before the penalty process starts. While the precise period will be influenced by the technology adopted, MSCCo anticipates this "grace period" will be one week.

While free-flow tolling removes the physical barrier and toll collection staff, it requires back-office systems and staff to process bills and deal with account queries etc. As such, it can be more expensive to operate, when contrasted with very simple cash-based systems, especially on low traffic volume facilities. However, MSCCo believe the benefits of free-flow tolling far outweigh any disbenefits.

Tolls are currently not collected 24 hours. This is not equitable and is prone to safety issues. Free-flow allows 24 hours toll collection. The additional revenue, while small, helps reduce the toll increase needed.

2.6.4 Supporting Other Sustainable Modes of Travel

MSCCo also wishes to encourage more sustainable travel options, whatever toll collection system is adopted. Therefore, in addition to maintaining free access for those using a bicycle, it is proposed that:

- Buses operating a public timetable service will be exempt from the toll (it is assumed these heavier vehicles will in the future be able to use the bridge, a further benefit of the improvement works).
- Pedestrian access to the bridge and safety will be enhanced.
- Vehicle speeds and sizes will also be more strongly regulated and enforced, to the benefit of all.

3 BENEFITS OF THE BRIDGE

3.1 The Role of the R&W Toll Bridge in the Local Network

The R&W Toll Bridge crosses over the Manchester Ship Canal on the B5159 road, connecting the A57 and the Borough of Warrington (WBC) on the north side, with the A6144 and the Metropolitan Borough of Trafford (TMBC) in Greater Manchester on the south side.

The M6 and M60 are the two nearest alternative crossings of the Manchester Ship Canal to the west and east, while slightly further away, the Warrington and Barton bridges (respectively 6 miles west and 9 miles east of the R&W Toll Bridge) represent the closest alternative crossings on the local road network. Hence, the R&W Toll Bridge facilitates the local movements between the villages along either side of the Manchester Ship Canal but does not fulfil any wider strategic role (this being met by the M6 and M60).



Figure 3-1 Map of R&W Bridge and Surrounding Network

Source: Google Maps

3.2 Illustrative Long and Short Trips

For illustrative purposes, journeys have been investigated for short local trips between villages situated in close proximity, but on opposite sides of the Manchester Ship Canal; as well as those of slightly longer distances between larger centres. For each scenario, two possible routes have been assessed including one via the R&W Toll Bridge, and the other via the shortest possible alternative route, which uses the M6 or M60 crossings of the Manchester Ship Canal.

Table 3-1 Distances and Travel Times between Smaller Local Villages

.....

Origin-	Via R&W	Toll Bridge	Via M	otorway	corway Savings from using R&W T Bridge	
Destination	Distance (km)	Journey Time (minutes)	Distance (km)	Journey Time (minutes)	Distance (km)	Journey Time (minutes)
Glazebrook – Dunham Massey	6.7	9.0	19.6	23.0	12.9	14.0
Dunham Massey — Irlam	9.2	13.0	22.1	26.0	12.9	13.0
Partington – Risley	13.5	17.0	19.7	25.0	6.0	8.0
Partington – Glazebrook	7.5	10.0	20.7	25.0	13.2	15.0

Source: Google Maps directions, measured at 12 noon on 27 October 2021

Table 3-2 Distances and Travel Times between Larger and more Distant Settlements

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Origin-	Via R&W	Toll Bridge	Via M	otorway	Savings from B	n using R&W Toll ridge
Destination	Distance (km)	Journey Time (minutes)	Distance (km)	Journey Time (minutes)	Distance (km)	Journey Time (minutes)
Lymm – Worsley	19.4	23.0	23.4	38.0	4.0	15.0
Altrincham – Leigh	23.9	40.0	27.6	48.0	3.7	8.0

Source: Google Maps directions, measured at 12 noon on 27 October 2021

Table 3-1 shows that the R&W Toll Bridge provides significant benefits in terms of journey time, with savings ranging between 8 and 15 minutes. With regards to distance travelled, the kilometre savings range from 6.0 to 13.2km when the origin and destination of the journey are within close proximity to the bridge.

Table 3-2 shows that for slightly longer distance journeys the R&W Toll Bridge still provides journey time and distance savings. This is even more noticeable during peak time periods, when congestion usually builds up more significantly on the motorways than around the R&W Toll Bridge (noting the times in Table 3-1 and Table 3-2 are from midday).

3.3 Illustrative Time and Distance Savings

The routes outlined in Table 3-1 and Table 3-2 above have been assessed to determine the potential time and distance savings for a one-way trip using the R&W Toll bridge instead of the free alternative route. Time savings are represented by value of time (VoT) which defines a monetary value to the traveller's willingness to pay in order to reduce their journey time. Distance savings comprise of the difference in amount of fuel consumed on each route, as well as non-fuel impacts such as increased vehicle wear and tear. These are referred to as vehicle operating costs (VOC).

Table 3-3 and Table 3-4 show the total savings per one-way trip which comprise of VOC and VoT savings. These savings are represented in 2024 prices – the year the new toll is expected to be implemented. For fuel savings, the current price of fuel has been assumed at 139.8 pence per litre¹ given the uncertainty of fuel prices in 2024. It should be noted that the cost of the toll has not been incorporated in these savings calculations.

Onicin Doctination	Vehicle Opera	ating Costs (£)	Value of Time ² (f) Total Saving		
Ongin-Desunation	Fuel ¹	Non-Fuel ³	value of fime- (£)	TOTAL SAVINGS (E)	
Glazebrook – Dunham Massey	1.08	0.69	3.82	5.60	
Dunham Massey – Irlam	1.08	0.69	3.55	5.32	
Partington – Risley	0.50	0.33	2.18	3.01	
Partington – Glazebrook	1.11	0.71	4.09	5.91	

Table 3-3 Total Time and Distance Savings between Smaller Local Villages (£, 2024 prices)

Source: Vivid analysis, DfT TAG databook July 2021

Table 3-4 Total Time and Distance Savings between Larger and more Distant Settlements (£, 2024 prices)

Origin Destination	Vehicle Opera	ating Costs (£)		Tatal Cauta as (C)	
Origin-Destination	Fuel ¹	Non-Fuel ³	value of Time- (£)	Total Savings (£)	
Lymm – Worsley	0.42	0.25	4.09	4.77	
Altrincham – Leigh	0.33	0.18	2.18	2.69	

Source: Vivid analysis, DfT TAG databook July 2021

The R&W Toll Bridge provides a more direct route, irrespective of whether its users are travelling on a shorter local journey or on a slightly longer-distance journey. The R&W Toll Bridge generates combined VOC and VoT savings between £2.69 and £5.91. For example, a 13.2km detour between Partington and Glazebrook via the M6 would cost an estimated additional £5.91 in VOC and VoT compared with travelling via the R&W Toll Bridge. This suggests that even with a toll charge of £1.00 on the R&W Toll Bridge, motorists will still derive cost noticeable savings from utilising this route over the alternative routes via the motorway.

¹ Average price of unleaded petrol in the WA14 post code (Altrincham) on 21/10/2021, https://petrolmap.co.uk/petrol-prices/greater-manchester/altrincham

² Value of Time taken as the average across all trip purposes

³ Non-fuel VOC includes oil, tyres, maintenance and depreciation

These time and distance savings can also bring about environmental benefits for motorists who can travel farther while using less fuel and thus reducing their carbon footprint on a single journey. The environmental benefits are not limited to fuel-based vehicles, as until electric vehicles are charged using renewable energy, shorter journey times and distances would help limit the amount of non-renewable electricity required to fuel a single journey.

Further benefits could be seen as the vehicle fleet evolves to electric vehicles, meaning a greater possibility of the Government introducing a distance-based road tax system to replace the revenues lost from fuel tax, so ultimately, these distance savings of travelling via the R&W Toll Bridge will continue to generate savings for motorists in the future.

Finally, it should be noted that, the HMRC's approved mileage rates for cars and vans are 45p a mile for the first 10,000 business miles in a tax year and 25p per mile thereafter. The implications of this on a one-way business trip travelling between Partington and Glazebrook via the R&W Toll Bridge, the company would be required to reimburse its staff £2.10 plus the £1.00 toll, totalling £3.10 reimbursement. In comparison, the same one-way trip made via the alternative motorway route would generate a HMRC mileage reimbursement rate of £5.79. As such, it is more cost-effective for business trips to be made using the R&W Toll Bridge.

3.4 Other Toll Facilities

3.4.1 Other Privately Financed Facilities

Great Britain has a long tradition of privately financed small toll bridges and similar river crossings, including:

- Aldwark.
- Batheaston.
- Bournemouth-Swanage.
- Catford.
- Clifton.
- Cowes.
- Dartmouth-Kingswear.
- Dunham.
- Itchen.
- Kingsland.
- Rixton and Warburton.
- Swinford.
- Tamar.
- Totton and Eling.
- Whitchurch.
- Whitney-on-Wye.

3.4.2 Toll Rates

The toll rates charged at these various facilities have been reviewed, noting direct comparison with some is not possible due to either the nature of the facility (i.e. a ferry rather than a bridge) or the complex nature of toll rates and tariffs levied at some crossings. For example, the Tamar bridge has two toll rates, one for cash and one for a TAG (£2 and £1 respectively for cars), and it also operates the Torpoint Ferry at the same basic location.

However, looking at those bridges where a comparison is appropriate and can be made, the toll levels for cars per trip range from 5p at Swinford to £1 at Clifton. The average of all these facilities is approximately 45p. The R&W Toll Bridge is currently the second cheapest of those compared at 12p. The bridges considered are shown in Figure 3-2 below.





Source: Vivid Economics (October 2021)

3.4.3 How Toll Facilities Differ

When considering these tolls there are clearly a range of factors influencing the price, including the level of traffic, how the toll is collected, when an increase was last requested, and the type of bridge. For example:

- Swinford is a low level stone bridge. The current toll is 5p for cars, but it charges higher tolls for larger vehicles. The tolls were last raised in 1994.
- Kingsland is a low level steel bridge. The toll increased from 10p to 20p in 2011. A further increase to 30p was approved in 2012 but has never been implemented and it was said it had been approved to provide future "flexibility" should a further increase be required.
- Aldwark is a narrow low level steel bridge allowing traffic to pass in only one direction at one time and has a hardwood deck. Cars are 40p but a higher toll is charged for large vehicles. The last toll increase was 2005 when car tolls more than doubled from 15p.

- Dunham dates back to the 1830s but the low level bridge superstructure was rebuilt on its original piers in the late 1970s. The last toll increase (4p for cars) was in 2013, but there was also an increase in 2007. It also charges more for larger vehicles.
- Cartford is a short low level steel bridge on stone columns and is only wide enough to allow traffic to pass in only one direction at one time. It charges a higher toll for larger vehicles.
- Whitchurch is low level steel structure most recently renewed in 2014. The car toll was doubled in 2009 and increased another 20p in 2015. Larger vehicles pay a significantly higher toll than cars.
- Batheaston is a low level stone bridge. Recent toll increases were in 2014 and 2017 and larger vehicles pay a higher toll than cars.
- Clifton is a high level suspension bridge. The last toll increase was in 2014 when car tolls doubled.

Every bridge has its own unique characteristics and costs, which in turn influences the toll level they need to set. As such, drawing comparisons between the toll levels on the various bridges is of limited value.

In addition to these smaller more local bridges, there are a number of other major river crossings that currently levy a toll for cars⁴:

- Mersey Gateway £2.00.
- The Mersey Tunnels £1.80.
- Tyne Tunnel £1.90.
- Humber Bridge £1.50.
- Dartford £2.50.

As can be seen, the R&W Bridge currently has a very low toll compared with these and is not in line with any of these other crossings.

While an increase to £1.00, if implemented, would set the R&W Toll Bridge at the higher end of other small bridge tolls, it still leaves the toll significantly below the other existing tolled crossings of the Mersey and is likely to be the only small toll bridge that is currently making an allowance in its toll rate for any Covid-19 related traffic downturn.

3.5 Toll Indexing Over Time

Traditionally most small bridge tolls are not indexed to inflation. A strategy of non-indexation, given the costs of operating and maintaining these facilities inevitably increase, is however only sustainable with high traffic growth. While this was indeed a viable approach in the later decades of the 20th century when car ownership was still growing strongly, traffic growth into the future is now assumed to be much lower, and evidence from recent traffic on the R&W Toll Bridge, even before Covid-19, was that traffic levels were at best, flat and possibly declining.

Further, there is growing concern that the long-term impacts of Covid-19 will also have lasting effects on traffic levels through changing behaviours, such as a greater tendency to work from home, resulting in lower levels of traffic than pre-Covid-19.

⁴ Prices as of October 2021. Excludes local resident and frequent user discounts.

Given the desire of MSCCo to establish a sustainable long-term platform for the R&W Toll Bridge, indexing of the toll has been included in the strategy. However, it should be stressed that at a rate of 1% below inflation, even if it is applied, in real terms, the cost of the toll will still decline in real terms over time, and therefore benefits, in real terms, will be retained. Further, while the indexing will define the maximum possible toll in any year, the actual toll levied will only be set to the level required.

3.6 Conclusions

The R&W Toll Bridge provides benefits to the local community, both in terms of time and distance savings by providing a more direct and efficient connection between villages situated on opposite banks of the Manchester Ship Canal.

As Table 3-1 and Table 3-2 demonstrate, drivers can substantially reduce their travel distance both on local and longer-distance trips by choosing to use the R&W Toll Bridge over competing alternatives. This brings both economic and environmental benefits for motorists, who can travel farther while using less fuel and thus reducing their carbon footprint on a single journey. The extent of these time and distance saving benefits depends on the time of day the journey takes place, as well as the trip purpose, across all routes.

Importantly, the time and distance savings for all routes, with the exception of Leigh to Sale, are greater than the value of the increased toll being proposed, which would indicate most users will still gain significant benefits from using the R&W Toll Bridge, even after a toll increase of up to £1.00.



4 TRAFFIC AND REVENUE

4.1 Current Traffic Patterns

Traffic counters have been in place on the R&W Toll Bridge since November 2016. There have been occasions when the counters did not collect data, and this missing data has been infilled based on traffic observed at similar times. Figure 4-1 shows the total daily traffic recorded since January 2017, along with a 7-day rolling average, for each of the years.





Source: Vivid Economics analysis and MSCCo traffic count data

Setting aside noticeable dips in traffic flow, which tend to be around public holidays, such as Christmas and Easter, the graph shows no real growth over the years 2017, 2018, and 2019.

However, the Covid-19 pandemic had a significant impact on traffic levels along the R&W Toll Bridge as noted by:

- The steep drop in April 2020 reflecting the first nationwide lockdown in the UK.
- Traffic throughout 2020 and early 2021 then remained low due to the various travel restrictions in place.
- Since approximately April 2021, traffic flow has picked up but still remains below "normal" levels.

Over 2020 and 2021 there have been periods when toll collection was suspended as a consequence of Covid-19. There is no evidence in the data to indicate either the suspension or reintroduction of the toll, had any noticeable impact on traffic levels.

In order to monitor differences in hourly traffic flows, a week in October 2019 and 2021 was assessed, where there were no public holidays, school holidays or other out of the ordinary events that might skew traffic flow. Figure 4-2 to Figure 4-5 show the average traffic flows on weekdays and weekends before the Covid-19 pandemic (2019), and the most recent period (2021):

- It appears that weekday traffic levels have somewhat recovered to pre-pandemic levels, where the peak average flow in October 2019 reached 549 vehicles, whilst in October 2021 the peak flow reached 516 vehicles.
- In October 2019, the morning peak saw greater traffic flows in the northbound direction, with the afternoon flows being greater in the southbound direction. The reverse is true in October 2021.
- Hourly flows at the weekend are substantially lower than weekdays in both 2019 and 2021. Both directions in both years exhibit nearly identical hourly profiles at the weekend, characterised by a single peak in the middle of the day.
- 2021 weekend traffic flows are only marginally lower than 2019 records, as can be seen when comparing Figure 4-3 and Figure 4-5.
- Comparing the full month of October in 2019 and 2021, traffic flows are around 6% lower in October 2021, which can be attributed as the impact of Covid-19.
- Total daily flows were roughly balanced by direction in both 2019 and 2021, during weekdays and weekends. This pattern is typical for most weeks of the year.
- For both weekdays and weekends, it can be seen that traffic levels at night are very low, which is why, at present, it is not considered cost effective to collect tolls at these times.

For a central scenario, we have assumed a 5% decline in traffic as a one-off impact due to greater working from home post Covid-19, with sensitivity tests of a 2.5% decline and a 7.5% decline.





Figure 4-2 Average Weekday Hourly Flows Week Commencing 14th October 2019

Source: Vivid Economics analysis and MSCCo traffic count data





Source: Vivid Economics analysis and MSCCo traffic count data



Figure 4-4 Average Weekday Hourly Flows Week Commencing 11th October 2021

Source: Vivid Economics analysis and MSCCo traffic count data





Source: Vivid Economics analysis and MSCCo traffic count data

4.2 Methods of Payment

To investigate the split of different payment methods MSCCo undertook a one-week survey on week commencing 2nd October 2017. Despite the survey being undertaken four years ago, it is not expected that the results would differ substantially from today. The monthly toll hours traffic in October 2019 was almost identical to the traffic in 2017 when the survey was undertaken, being just 1.3% lower. This survey also looked at how many people paid the exact fare (of 12p) and how many required change, as well as the numbers of vehicles not paying i.e. those that are exempt. The findings from this survey were:

- Single 12p tickets represented 61% of users, with 17% requiring change from the toll collector.
- Day 25p tickets were "purchased" by 19% of users.
- A day ticket was "shown" by 16% of users (i.e. they had bought the 25p ticket earlier in the day)

Given the low number of annual passes being used and given greater use of these would improve flow at the toll booth, in 2019 MSCCo launched a campaign in association with the new website, to boost take up. However, take up has remained modest and they still represent only a very small proportion of traffic.

The average revenue from all vehicles during the survey was 11.8p. The average revenue per vehicle using the monthly revenue and monthly tolled traffic is just under 11p. A number of factors explain the difference in the average toll per transaction, including times when all vehicles pass through and do not pay the toll (e.g. for sports events and major problems on the M6 when the tolls are lifted). In addition, tolls are not always strictly collected to the exact timings described in previous chapters, noting that it is a manual collection operation.

4.3 Revenues

Prior to Covid-19, yearly revenues had been around £300k a year (including VAT), although financial year (FY) 2018/19 saw a significant drop of around 40% in revenues, reflecting the inability to collect a toll between May and August 2018, following the arson attack. In addition to the lost revenue, the cost of installing a temporary toll booth and fitting a new one amounted to approximately £92k. Both the loss of revenue and the additional costs have been absorbed by MSCCo and have not been carried forward in this business case.

FY 2020/21 covered the peak of the Covid-19 pandemic, which unsurprisingly recorded a massive loss in revenue, and while there has been some recovery in FY 2021/22, it is as might be expected, still running well below traditional levels. These considerable losses in revenue, while staff were on furlough, have not been carried forward into the business case, having been absorbed by MSCCo.

Consequently, the latest consolidated revenue data excluding Covid-19 corresponds to the first 8 periods of FY 2020 (i.e. months of April 2019 to November 2019) and the four last periods of FY 2019 (December 2018 to March 2019). This data gives a complete 12-month period, which is used as the base year forecast. This period collected tolls worth around £290k inclusive of VAT, which corresponds to 2.6 million trips paying the toll that year (assuming an average of around £0.11 per vehicle). This is a slightly lower yearly revenue total when compared with the previous years but is consistent with the corresponding traffic data which also shows small declines. For the business case, revenues have been assumed to be 5% higher due to the introduction of 24-hour toll collection.

This small drop in revenues was, at the time it occurred, assumed to be temporary, and traffic was expected to resume growth in line with national averages going forward, beyond the impacts of Covid-19. However, it should be noted that Covid-19 has dampened confidence in this assumption, and the associated increased uncertainty and need for toll indexing is discussed later in this report. The monthly pattern of revenues recorded in the base year is shown below.



Figure 4-6 Revenue (£) on the R&W Toll Bridge (inc. VAT)

Source: MSCCo

Forecast Traffic Growth 4.4

In July 2018, the DfT released traffic forecasts for England and Wales for the next twenty-five years. These were the most recent forecasts available at the time of the analysis, as they are not updated every year. However, clearly, being prepared in 2018 they do not include any potential long-term impacts of Covid-19. It is important to note that the DfT does not provide a single estimation of future traffic growth rate across regions and road types. Instead, the DfT offers a range of plausible values based on the definition of three alternative scenarios. The scenarios are built to reflect not only the underlying uncertainty about the expected trajectory of the main socio-economic drivers used to forecast the traffic but also to reflect potential changes in long term relationships between these variables and traffic growth.

The three main dimensions addressed by the scenarios are:

- The number and frequency of trips made by UK drivers (trip rates). •
- The underlying relationship between income growth and traffic growth (income relationships).
- Different macroeconomic scenarios (economic outlook).

The combinations of these for the three scenarios are summarised in the two tables below.

Scenario	Trip Rates	Income Relationships	Economic Outlook
Scenario 1	Historic Average	Positive and Declining	Central
Scenario 2	Historic Average	Positive and Declining	High Fuel, Low GDP
Scenario 3	Historic Average	Positive and Declining	Low Fuel, High GDP

Table 4-1 Traffic Scenarios built by the DfT

Source: DfT - Road Traffic Forecasts July 2018

Scenario	2020-2040
Scenario 1	0.9%
Scenario 2	0.7%
Scenario 3	1.0%

Table 4-2 DfT Car and LGV Traffic Projections (Northwest Region) Compound Average Growth Rate

Source: DfT Road Traffic forecasts July 2018

Based on these scenarios, the DfT projects Northwest region traffic will be:

- Between 20% and 35% higher than 2015 by 2040.
- An average year-on-year growth rate between 0.7% and 1.2% for the 25-year period.

Looking at the forecasts for the Northwest region for the short term, the DfT forecasts an annual average growth rate of between 0.9% and 2.1%. Growth rates are then forecast to converge to between 0.7% and 1.2% post-2020 in the long term. The following chart shows the growth projections for the three scenarios.

Figure 4-7 DfT Car and LGV Traffic Projections from 2015 for Northwest Region (accumulated percentage growth)



Source: DfT Road Traffic Forecasts July 2018

The traffic growth assumed in the business case for the Base Case is 0.9% a year, reflecting Scenario 1, while the Downside scenario follows Scenario 2 and the Upside follows Scenario 3.

The traffic forecasts used in the business case also include a one-off impact on traffic flows following Covid-19, and greater working from home, as follows:

- Base Case: -5%.
- Downside: -10%.
- Upside: 0% (i.e. no long term impact).

4.5 Forecast Toll Price Elasticity

For the purpose of considering future traffic, and hence revenue levels, the final consideration is how the price of the toll influences behaviour. This is usually referred to as "toll price elasticity", which utilises what is known as an arc elasticity. An arc elasticity measures elasticity at the midpoint between two selected points on the demand curve. A negative sign indicates an increase in toll causes a decrease in demand. Low price elasticity means an increase in the toll generates greater revenue, while high price elasticity means the opposite.

There are three basic forms of toll road: barrier crossings, intercity toll networks and urban congestion projects. The R&W Toll Bridge is a barrier crossing (i.e. in this case the barrier is the canal), and would be expected to have a relatively low price elasticity. Research on the price elasticity of the R&W Toll Bridge has not been possible due to the absence of toll changes in recent years, although the traffic in the Covid-19 period does not appear to have been impacted either by the suspension of the toll, or its reintroduction. Extensive research on other barrier crossing toll bridges around the world indicates a price elasticity of around -0.10, for bridges similar to the R&W Toll Bridge.

Given this research, and the analysis in this report that shows use of the R&W Toll Bridge offers significant benefits to users, a price elasticity of -0.075 has been used for the base case forecasts. Two alternatives have also been conducted using -0.10 and -0.5 price elasticity values, reflecting potentially greater and lesser sensitivity to a toll increase respectively.

4.6 Local User Discount

The business case also considers an additional Local User Discount of 50%. It is currently anticipated that this will be offered to those residents in postcodes WA3 6 and WA13 9.

A user survey undertaken just prior to Covid suggested this would represent around 30% of all users of the R&W Toll Bridge (although it should be noted that the survey sample was small). Should this proportion prove smaller a larger discount, or a reduction in the headline toll for other users can be implemented. Should this proportion be larger, a smaller discount may have to be offered.



5 COSTS

5.1 Overview

To assess the R&W Toll Bridge, the costs for the proposed upgrades are considered in four categories:

- Operating costs.
- Upgrade costs (capital expenditure).
- Cost of capital (or financing costs).
- Reserve fund.

5.2 Operating Costs

5.2.1 Overview of Current Costs

Before considering future costs, current costs for the R&W Toll Bridge have been reviewed (noting this was undertaken before Covid-19). The first thing to note is that unlike many facilities of this type around the country, there is currently, no self-contained toll bridge company which has the R&W Toll Bridge as its sole asset. The R&W Toll Bridge is currently owned by MSCCo who hold multiple assets. Consequently, at present, there are no company accounts specific to the R&W Toll Bridge, and the various costs and revenues related to the R&W Toll Bridge are integrated into the wider management and statutory accounts for MSCCo.

While major items such as revenues and staff costs for toll collection are identified in the management accounts, many other cost items are not explicitly accounted for, such as management time related to staff in other departments within MSCCo. This includes staff working in the engineering, legal, financial, planning and corporate departments, who devote a proportion of their time to R&W Toll Bridge issues without keeping an explicit record. As such, the current management accounts significantly underestimate the true cost of running the R&W Toll Bridge. The analysis undertaken for the business case has endeavoured to address this under reporting of costs issue.

In addition, some costs are not incurred evenly on a year-on-year basis but are cyclical. A good example of this is the various bridge inspections that are undertaken. As such, to get a true sense of costs, it has been necessary to look across a number of years.

5.2.2 Current Toll Collection Costs

The current toll collection costs reported in the MSCCo management accounts, and which have been provided to Vivid Economics, largely comprise of the labour costs to collect the toll. In addition to these labour costs incurred each year, there are also other year-on-year costs relating to the collection of tolls including office supplies. As mentioned above, there are also costs incurred on a periodic basis, including health & safety, consultancy fees and training. The costs have been estimated in total at £107k and are shown below.

Table 5-1 Toll Collection Costs

ltem	Annual Cost	Source
Labour	£90k	MSCCo
Other year-on-year costs	£15k	MSCCo
Periodic costs (pro rata per year)	£2k	MSCCo
Total	£107k	

Source: MSCCo

5.2.3 **Current Other Operating Costs**

In addition to the operating costs relating directly to the toll collection (Table 5-1), there are other costs which do not to appear in the management accounts directly related to the R&W Toll Bridge.

These costs comprise of items such as utilities, rates payable, general maintenance, periodic inspections, and continuous traffic counts. For the periodic inspections, it should be noted that there is one principal inspection anticipated every six years, with two smaller general inspections two and four years after each principal inspection.

Further, it should be noted that the costs of the previous bridge refurbishment in 1998, along with works on the toll collection house, are still being depreciated in the accounts at approximately £34k per year. These costs are also likely to be underestimating the current expenditures on pot holes which have increased since the cost analysis was undertaken.

There may be other costs, but as referenced above, the management accounts do not identify the R&W Toll Bridge as a unique cost centre. With this in mind, there is the cost of MSCCo staff who expend significant amounts of time dealing with issues related to the bridge on a day-to-day basis, including engineering, legal, financial, planning, IT, and corporate. As it has not been possible to identify this from within the MSCCo management accounts, an estimate has been made as follows:

- Average salary for one Full Time Equivalent (FTE) person = $\pm 29k$.
- On cost uplift factor = 1.3.
- Total cost = 29*1.3 = £37k (rounded down).

All these costs are summarised in Table 5-2 below.

Item	Annual Cost	Source	
Utilities and rates	£5k	MSCCo	
General maintenance	£32k	MSCCo	
Inspections and traffic counter	£4k	MSCCo	
Cost of previous 1998 works	£34k	MSCCo	
Other MSCCo labour costs	£37k	Vivid Economics	
Total	£112k		
Source: MSCCo and Vivid Economics			

Table 5-2 Other Operating Costs

5.2.4 Surplus Balance of Current Revenues minus Costs

To demonstrate the financial operating position prior to Covid-19, the average yearly costs have been compared to the average revenues. As shown in Table 5-3 below, this gives a surplus of around £23k a year. Even if the balance were simply directed to funding the required future capital expenditure (around £6.5m), there is a very large gap between these costs and the surplus over 20 years. As such, the toll will have to be increased significantly to meet all future anticipated costs and provide a sustainable long-term basis for the R&W Toll Bridge going forward. Indeed, even if no upgrade works were to be undertaken, the financial condition of the R&W Toll Bridge is unsustainable at the current toll levels.

Item	Per Year (£)			
Total revenues (including VAT)	£290,000			
Total revenues (excluding VAT)	£242,000			
Toll collection costs	£107,000			
Other ongoing costs	£112,000			
Surplus Balance	£23,000			

Table 5-3 Summary Estimate of Average Yearly Costs and Revenues

Source: MSCCo and Vivid Economics

Further, this analysis does not account for years where costs or revenues have been atypical (noting in such years, costs are only ever higher and/or revenues lower). For example, the arson attack of 2018 resulted in a one-off cost of £92k, which alone would have absorbed over 4 years of the surplus balance of £23k. This analysis also excludes the impact of reduced revenues during Covid-19 and any costs related to the ongoing development and promotion of the TWAO.

5.2.5 Total Year-on-Year Operating Costs Assumed in the Business Case

The total operating costs are comprised of the following components:

- Toll collection costs at £107k per year.
- Other operating costs at £112k per year.

As such, for the business case analysis the toll collection costs and other operating costs, assuming operations continue as at present, totals £219k per year (plus year-on-year inflation). As the values were pre-Covid-19, and the model works on 2019/20 values, these were rounded to £220k.

However, allowance is also made for the additional costs of free-flow tolling. The current toll collection costs are around £90k, suggesting operating costs of around £130k if they are removed (i.e. £220k - £90k). While it is too early to obtain firm prices from potential operators of free flow tolling, indications are that such a system could be delivered for £300k to £350k a year. Taking a mid-point of £325k, plus the non-toll collection costs of £130k, gives a yearly operating cost of £455k. This value has been used in the business case analysis, with an assumption that costs will increase year-on-year at the rate of inflation.

While retaining an existing barrier and case-based system would be cheaper, it addresses none of the wider concerns of stakeholders over delays, safety and environmental impacts in the village of Warburton. Only the free-flow tolling option addresses all the concerns of stakeholders, provides a toll facility that is fit for purpose and meets the expectations of users in the 21st century. As such, while it has a higher cost, it is the best option from a wider benefit perspective, and so it is the option that has been taken forward.

5.3 Upgrade Costs

5.3.1 The Existing Bridge Structure

Wilde Consultants have analysed the residual design life of the R&W Toll Bridge and subsequently provided high-level budget estimates for a series of options considered for the strengthening or replacement of the crossing. The bridge inspection carried out in July 2016 (the most recent available) highlighted that the R&W Toll Bridge was classified as in poor condition and that it was in urgent need of remedial works. The rating of poor condition is most likely due to the fact that no major maintenance works have been undertaken since 1998.

The required remedial works identified include:

- Steelwork repairs.
- Grit blasting.
- Repainting.
- Refurbishment of the timber footway detail.

Further, Wilde Consultants have estimated that the current cost of a new bridge and bridge abutment replacement would be £15m.

Based on this independent assessment, MSCCo have developed detailed cost estimates for upgrading the R&W Toll Bridge (noting these were prepared before Covid-19 and were in a price base for the anticipated time of construction) that comprised of the following:

- Preliminary costs These include design work and procurement costs.
- Toll system installation As part of the upgrade a new toll system will be introduced.
- **Coatings and fabrication (for the bridge structure)** The existing bridge is considered to be in poor condition. The refurbishment works required include grit-blasting and repainting.
- **Civils and surfacing (for the Bridge Road)** The road approaches to the north and south will be resurfaced and the pedestrian footpaths refurbished with barriers. To the north and south, approach signage will also be upgraded.
- Fees and Contingencies.

The breakdown of the costs is shown in Table 5-4 below.

Table 5-4 Bridge Upgrade Costs (Free-Flow Tolling) at Time of Expenditure

ltem	Cost (£m)
Preliminary costs	£1.6m
Toll system installation	£1.0m
Contractor preliminary works	£0.7m
Coatings and fabrication (bridge)	£1.2m
Civils and surfacing (road)	£1.2m
Fees and contingencies	£0.8m
Total	£6.5m

Source: MSCCo estimates

There is some concern that construction costs are now considerably higher than pre-Covid-19 (even allowing for inflation), and ongoing delays to the start of the works will further increase costs. MSCCo propose to monitor the issue, and if required, may need to re-design or phase some elements of the works. However, MSCCo is committed to delivering the core elements of an upgraded bridge, improved carriageway, and free-flow toll system, and as shown later, sensitivity testing suggests a higher cost could be accommodated within the flexibility of the business plan.

5.4 Cost of Capital

The investment of £6.5m mentioned above for the upgrade will need to be paid when the works occur, but as there is no reserve fund currently in existence, these works will initially need to be funded through the raising of debt and/or equity.

At present, a detailed funding strategy has not been developed and it is not anticipated that this will be undertaken until after the confirmation of the TWAO and the receipt of final pricing on the upgrade works.

Therefore, for the business plan development (discussed in Chapter 6), a simple cost of capital of 10% has been adopted, based on historic expectations of debt and equity retuns. In the business case the cost of capital payment is the same in every year of the 20 years, which is based on the principle of constant payment at a constant interest rate (in this case 10%) plus one twentieth of the principle. A lower cost of capital would mean, all other things being equal, a lower toll.

5.5 Reserve Fund

The business case model works on a cascade of revenues against costs, with operating costs first, then the cost of capital, and with the final balance being paid into a reserve fund.

The reserves built up in this fund will be available as required for future major works. A target has been set within the development of the business plan and calculation of the maximum toll level, to keep this fund to no more than 30% of the estimated nominal costs of a new bridge and bridge abutments in 30 years' time. A new bridge and bridge abutments have been estimated at a cost of £15m, but this cost is assumed to increase over time at the rate of inflation. This reserve fund balances between the impact on users today (noting it is the actions of vehicles today which lead to the need to replace the bridge in the future), and a need for prudent stewardship of the asset for the long term.

6 THE BUSINESS MODEL

6.1 Model Overview

In order to support the case for investment in upgrading the R&W Toll Bridge, a business model has been developed. The model reports the financial position of the Undertaking given various different assumptions on future costs. The purpose is:

- To demonstrate the need for, and model, the financial impact from the proposed toll increase.
- To provide details and costs of ongoing maintenance along with estimates and details of the proposed levels of balancing contributions to the reserve fund.

This chapter describes the calculations and assumptions used to calculate the financial projections.

6.2 A Clean Slate Model

The first thing to note is that the model starts balancing costs and revenues in the first year that the new toll is levied. In that respect, it starts with a clean slate:

- Current costs, such as depreciation of the 1998 works, are not transferred across to the new Company.
- The current poor financial condition of the R&W Toll Bridge (with large, unexpected costs linked to the arson attack of 2018 and the collapse of revenues over the Covid-19 period) is set to zero.
- The detrimental period in the future when tolls will not be collected while the upgrade works are being undertaken will not be considered.
- The costs associated with the TWAO process will not be caried forward for repayment, although noting any future costs incurred by the new Company for similar activities would need to be covered out of the reserves of the Company or financed through toll revenues.

It is believed that the new Company responsible for the Undertaking should start with a clean slate, as burdening the new Company with these old costs would result in a need for unsustainably high tolls from day one.

6.3 Base Case

Table 6-1 shows the Base Case assumptions that underpin the business plan. When input into the business case model it indicates that a headline toll of \pm 1.00 (including VAT), with a 50% local discount being offered, will be required to cover all costs and to deliver a reserve fund that is close (although still slightly below) the target after 20 years. The split of where revenues go over the 20 years is as follows:

- VAT = 20%.
- Operating costs = 29%.
- Upgrade costs = 16%.
- Cost of capital = 21%.
- Reserve fund = 14%.

Table 6-1 Base Case – General Inputs

Item	Assumption
СРІ	2% a year
Traffic growth	Scenario 2 = 0.9% a year
Price elasticity	-0.75
One-off impact of Covid-19	-5%
Year 1 of the new toll	FY = 2024/25
New toll amount	Headline: £1 including VAT in Year 1 Local discount 50% with 30% take up Toll yield 90% and toll indexed yearly at CPI minus 1%
Reserve fund	30% of £15m indexed to CPI
Cost of capital	10% with a payback period of 20 years
Operating costs	£450k a year in 2019/20 prices indexed to CPI
Upgrade cost	£6.5m all incurred Year 1

Source: Vivid Economics

Figure 6-1 below shows the build-up of the surplus year-on-year that would be set aside in the reserve account. As can be seen, year 1 only has a surplus of around £100k. This suggest that the toll could be just under 90p including VAT if no reserve fund were required.





Source: Vivid Economics

6.4 Downside Case

Given the uncertainty, especially over traffic levels, the Table 6-2 shows the Downside Case assumptions that underpin the business plan.

Item	Assumption
CPI	2% a year
Traffic growth	0.7% a year
Price elasticity	-0.1
One-off impact of Covid-19	-7.5%
Year 1 of the new toll	FY = 2024/25
New toll amount	Headline: £1 including VAT in Year 1 No local discount Toll yield 90% and toll indexed yearly at CPI minus 1%
Reserve fund	30% of £15m indexed to CPI
Cost of capital	10% with a payback period of 20 years
Operating costs	Same as Base Case
Upgrade cost	Same as Base Case
Source: Vivid Economics	

Table 6-2 Downside Case – General Inputs

The business case model indicates that with a headline toll of £1.00 (including VAT) it would not be possible to offer a local 50% discount and to deliver a small reserve fund (less than half the target) after 20 years. The split of revenues over the 20 years is as follows:

- VAT = 20%.
- Operating costs = 32%.
- Upgrade costs = 17%.
- Cost of capital = 23%.
- Reserve fund = 8%.

The figure below shows the build-up of the surplus year-on-year, that would be set aside in the reserve account. As can be seen, Year 1 has virtually no surplus and the project financing is very tight. If it was decided that it was not reasonable to build up a reserve fund in this environment of high Covid-19 impact and low traffic growth, and therefore this objective were removed, the toll escalation to CPI minus 1% could be removed, so all users paid £1 including VAT every year for the next 20 years.

Figure 6-2 Downside Case Accumulated Revenues for the Reserve Fund



Source: Vivid Economics

6.5 Upside Case

Table 6-3 shows the Downside Case assumptions that underpin the Business Plan.

Table 6-3 Upside Case – General Inputs

Item	Assumption
CPI	2% a year
Traffic growth	1.0% a year
Price elasticity	-0.05
One-off impact of Covid-19	None
Year 1 of the new toll	FY = 2024/25
New toll amount	Headline: £0.90 including VAT in Year 1 Local discount 50% with 30% take up Toll yield 90% and toll indexed yearly at CPI minus 1%
Reserve fund	30% of £15m indexed to CPI
Cost of capital	10% with a payback period of 20 years
Operating costs	Same as Base Case
Upgrade cost	Same as Base Case

Source: Vivid Economics

The business case model indicates a year one headline toll of £0.90 (including VAT) will be required, but with higher traffic and therefore higher revenues, it would be possible to remove the indexing of tolls to CPI minus 1%. While the above tolls meet the objectives, this scenario offers a lot more flexibility on the headline toll and discount level.

The split of revenues over the 20 years is as follows:

- VAT = 20%.
- Operating Costs = 29%.
- Upgrade Costs = 15%.
- Cost of Capital = 20%.
- Reserve Fund = 18%.

Figure 6-3 below shows the build-up of the surplus year-on-year that would be set aside in the reserve account. As can be seen, as the project finances are healthy from day one, the reserve fund can be built up slowly in line with year-on-year traffic growth, and without resorting to CPI minus 1% toll escalation over time.

Figure 6-3 Upside Case Accumulated Revenues for the Reserve Fund



Source: Vivid Economics

6.6 Other Sensitivity Tests

A number of one-off sensitivity tests have also been undertaken on the Base Case. This was done by only adjusting one model assumption. The results are as follows:

- Operating costs could be increased by 20% and the project can still self-finance itself, although the reserve fund after 20% years would only be about 50% of the target value.
- Upgrade costs could be increased by 15% and the project can still self-finance itself, although the reserve fund after 20% years would only be about 50% of the target value.
- CPI within a range 1% to 3% does not significantly impact on the overall project finances.
- The project financing can support cost of capital up to around 12.5%. A rate of 7.5% would allow a headline toll at around £0.85 with a 50% discount for local traffic, to deliver a similar outcome to the Base Case.

These tests indicate that a maximum headline toll of £1.00 should be adequate to meet a wide range of possible future uncertainties, and there is the possibility that a lower headline toll can be charged.

6.7 Conclusions

The business model has been used to calculate what the maximum toll level would need to be given best estimates for revenue, capital expenditure costs and operating costs, as well as the toll needed under a range of different scenarios (upside and downside) and sensitivity tests. This confirms that a maximum toll of £1.00 in year one, along with indexing to CPI minus 1%, should give sufficient flexibility for the Undertaking to manage its finances, and hopefully build up at least some level of reserve fund.

Based on the objectives set out in the strategy for the R&W Toll Bridge, and the analysis of the business model, a maximum toll of up to £1.00 (inclusive of VAT) is recommended, which has the potential to be indexed to yearly increases of 1% below inflation.



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