MOTT MACDONALD

Wirral Mass Transit Delivery Strategy

Final Report

September 2020

Mott MacDonald
Ground floor
Royal Liver Building
Pier Head
Liverpool L3 1JH
United Kingdom

T +44 (0)151 482 9910
mottmac.com

Wirral Borough Council

Wirral Mass Transit Delivery Strategy

Final Report

September 2020

Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
01A	18/06/20	HJ	NO	RB	First Draft
01B	13/08/20	HJ	NO	RB	First Issue
02A	09/09/20	HJ	NO	RB	Final Issue

Document reference: 408026 | |

Information class: Standard

Contents

Executive Summary

Introduction

Mott MacDonald were commissioned by Wirral Council in Summer 2020 to produce a Delivery Strategy for the identification, design, funding acquisition and delivery of a comprehensive Mass Transit network for Wirral. This report sets out the various stages involved in this process and identifies a robust set of tasks that are recommended to be completed to develop the network and progress towards delivery, and practical timescales to achieve this.

It is understood that delivery of the first phase of the Mass Transit Network will be required in mid-2022 to support the development of a key part of the Wirral Waters development by Peel Group, and the programme has been designed around this significant deadline. It should be noted that we believe delivery by this date to be challenging but achievable as long as the intervening tasks are completed as planned and there are no unforeseen delays to the programme. Further to this, and wider than the need for the system as generated by Wirral Waters, a Mass Transit Network is considered to be essential to support the ongoing regeneration of Birkenhead and surrounding areas as described within the Birkenhead Regeneration Framework, in which a lack of high quality public transport is seen as a major barrier to achieving its aims and objectives.

The Mass Transit scheme for Wirral has strong interfaces with a number of other ongoing major schemes, many of which are currently at Business Case stage including:

- the development of the Green Corridor between Birkenhead Central / Hind Street and Wirral Waters for walking, cycling and public transport including potentially the Mass Transit system;
- the business case to remove the flyovers adjacent to Birkenhead Central and remodel the Hind Street area to facilitate large-scale redevelopment; and
- ongoing regeneration work on the A41 corridor south of Birkenhead, and to the north of Wirral Waters between Seacombe and New Brighton.

The strategy to deliver the Wirral Mass Transit network has been developed in conjunction with Wirral Council, and Peel Land and Property as a key part of the project team, with supporting input from Peel's own consultant team. A series of meetings with relevant parties (including Wirral Council and Liverpool City Region Combined Authority) have taken place where the direction, contents and programme of the strategy have been discussed and a mutually agreed consensus achieved. This document provides a plan that has been agreed by Wirral Council and Peel Land and Property, and provides a detailed look at the stages of work to be pursued in order to progress scheme development towards delivery.

Scheme Concept and Need

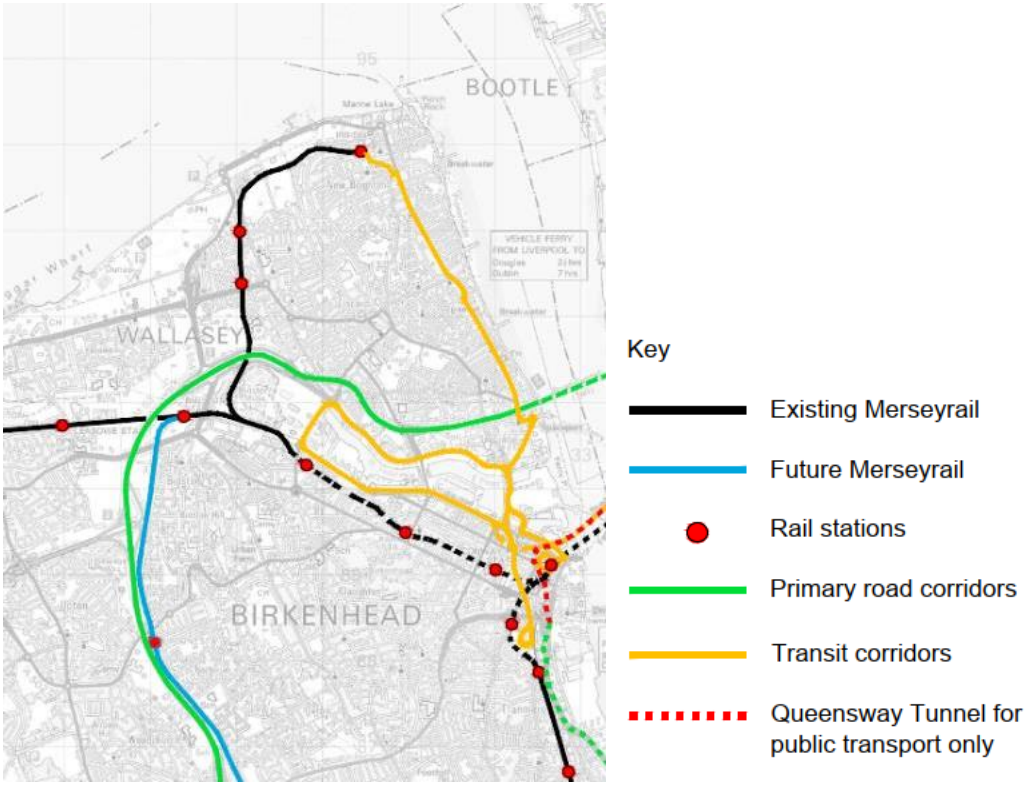
A Mass Transit network for the Birkenhead and Wirral Waters area of the borough has been discussed for several years, however it is only recently that the recommendations from several major transport and regeneration studies (including Wirral's Strategic Transport Framework Action Plan, transport feasibility studies for the A41 North area and Wirral Waters, and the Birkenhead Regeneration Framework and its daughter Development Action Plans for key areas within the borough) have aligned to prioritise development.

Mass Transit as a concept, refers to a high quality public transport mode providing regular frequency, high capacity and highly legible services (with instantly recognisable branding and distinct routes with clearly defined interchange points). Importantly Mass Transit can be formed of any one of a number of potential modes from rubber-tyred bus to steel-wheeled tram or tram-train), each with their own levels of guidance, propulsion, power and segregation. It should be noted that this Delivery Strategy is entirely mode agnostic with the workstreams described herein forming the envisaged methodology for prioritising and identifying the ultimate mode and routeing choices. Furthermore, the ultimate solution could potentially be formed from a combination of modes, or be phased to allow modes to evolve and change over time (for example using bus-based modes initially which are later replaced by steel-wheel fixed links once the demand for and popularity of a route have exceeded a certain point).

This Delivery Strategy will guide the reader through the required process to develop the right scheme to meet local objectives, and ultimately to access likely required public funding to develop and support the scheme. This Delivery Strategy provides detail to the required stages of the process including Options Appraisal (at which final decisions are made on a preferred mode and route for the various stages of the network), strategic rationale, economic justification and other important items of evidence with which to leverage the required buy-in from all parties.

The following figure highlights the concept Mass Transit network identified and discussed within Wirral Strategic Transport Framework Action Plan and the daughter transport feasibility studies for Wirral Waters and A41 North. The yellow lines on the figure highlight potential Mass Transit alignment concepts as emerging from those studies.

Figure E.1: Concept Mass Transit Network – Wirral STF Action Plan



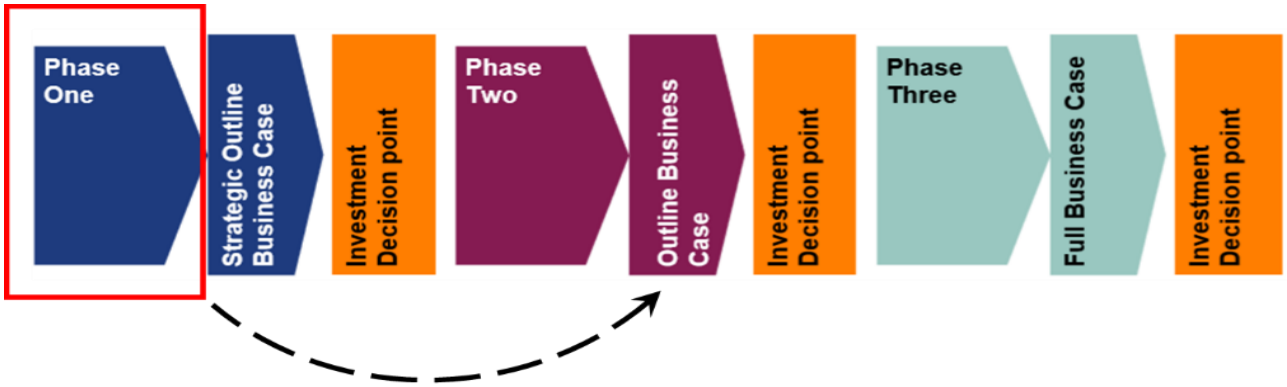
Source: Mott MacDonald

Delivery Strategy Overview

Usually the first stage of work to deliver a scheme with public funding is a Strategic Outline Business Case (SOBC). However, in the case of Wirral Mass Transit scheme, a series of studies have already been completed to aid its development, which fulfils many of the Transport Analysis Guidance (TAG) requirements for an SOBC.

Therefore, it is recommended that the Wirral Mass Transit scheme proceeds immediately to Outline Business Case stage, with the gaps for the SOBC stage filled by specific pieces of accelerated work to address these, namely a funding and finance study, a demand study and an options appraisal to TAG compliant standards.

Figure E.2: Proposed Approach for Wirral Mass Transit



For this reason, the delivery strategy is broken into three stages:

- Stage 1: The initial stage covers all phases of the scheme and proposes accelerated studies to bridge the gap between existing work and readiness for the Outline Business Case and related aspects. These accelerated studies would cover demand for the scheme, methods for funding and financing it, and deciding preferred choices in terms of mode and routeing for the system. All of these elements must be confirmed at the outset to steer the overall development of the scheme. Additionally, a robust evidence base is required to justify the reasons for instigating change in the form of a new Mass Transit scheme in north Wirral – this will be provided by the Strategic Case of the Outline Business Case. This, along with an understanding of how the scheme's delivery will be managed, need to be compiled for all stages of the scheme before further decisions and investment is made on the early phases.
- Stage 2: The second stage of the delivery programme focuses on prioritising progression of the first phase of the scheme to enable some early components of the Wirral Waters development to be delivered. The Mass Transit system is expected to be vital in providing sustainable accessibility to the area which is currently poorly served by public transport. This stage encompasses the remaining parts of the OBC pertaining to Phase 1 which aren't covered in the first stage, plus a decision from the funding body. Assuming funding is awarded, detailed design and costings will need to be completed prior to construction.
- Stage 3: Once the first phase of the scheme has been designed and is ready for construction work, the third stage of delivery can commence, with the remaining parts of the Outline Business Case pertaining to the whole scheme completed. As with the second stage, this would be followed by the funding decision, detailed design, costings and construction of the rest of the scheme not included within Phase 1.

The summary programme presented on the following page (Figure E.3) shows just the primary stages and high level headings of each component of the Delivery Strategy.

The following table shows the key envisaged milestones of the Delivery Strategy.

Table E.1: Key Milestones of the Delivery Strategy

Ref	Milestone	Envisaged Date (Week Commencing)
1	Delivery of Demand Study	30th November 2020
2	Delivery of Funding and Finance Study	30th November 2020
3	Appraisal Specification Report for Economic Case	30th November 2020
4	Options Appraisal Report for Whole Scheme	14th December 2020
5	Commissioning of Parallel Scheme Engineering Study	December 2020
6	Completion of Outline Business Case and CA Decision to Progress for Phase 1 of Mass Transit Network	July 2021
7	Opening of Phase 1 of Mass Transit Network	August 2022
8	Completion of Full Business Case and CA Decision to Progress for further phases of Mas Transit Network	August 2023
9	Opening of Phase 2+ of Mass Transit Network	May 2025

Accelerated Study Requirements

Within Stage 1 of the delivery programme, i.e. the initial stage which covers all phases of the scheme, there are three pieces of work which are recommended to be accelerated to progress the delivery of the Mass Transit scheme and bridge the gap between the current position and Outline Business Case tasks which are required as soon as possible. These are:

- a Funding and Finance study to look at ways in which funding and revenue can be generated for the scheme and the various options for financing this;
- a Demand Study which looks at the potential demand that may be generated to use the proposed network and the costs and revenue that may be produced as a result, and
- an Options Appraisal Report which forms a key initial stage of the Outline Business Case process and will establish the preferred option for the network as a whole.

Funding and Finance Study

A Funding and Finance study is required immediately in order to investigate and model the various available options for funding the Mass Transit Network, both in terms of initial capital investment and ongoing maintenance and revenue costs. The study would look at multiple options and produce a cashflow model to assess the impact and ultimate suitability of each. In addition, a Commercial Strategy would be produced to review the optimum operating model for the delivery of the network, to assign roles and responsibilities and to allocate duties and risk.

Demand Study

A Demand Study is required immediately in order to ascertain the level of expected passenger numbers that could potentially use the new Mass Transit system including those new trips generated by developments such as Wirral Waters and other development sites identified in the Birkenhead Regeneration Framework, those generated by growth in the attractiveness and prosperity of the area, and those transferring from other existing modes. The Demand Study would also provide an understanding of the amount of revenue generated by the expected new

passenger demand and, in conjunction with the Funding and Finance Study, whether this it would be ultimately self-sustaining or whether it would require subsidy from another source.

The study would provide much of the initial information required for the Economic Case of the OBC for Phase 1.

Figure E.3: Wirral Mass Transit Delivery Programme (Summary)

Stage		Tasks	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25
1	1	Options Appraisal (Whole scheme)																																																																					
	2	Demand Study (Whole scheme)																																																																										
	3	Funding and Finance Study (Whole scheme)																																																																									
2	4	Business Case - Strategic and Management Cases (Whole scheme)																																																																									
	5	*Engineering Feasibility Study (Whole scheme)*																																																																									
	6	Business Case - Economic, Financial and Commercial Cases (Phase 1)																																																																								
	7	Funding Body Decision (Phase 1)																																																																								
	8	Detailed Design (Phase 1)																																																																								
	9	Construction (Phase 1)																																																																								
	10	Monitoring and Evaluation (Phase 1)																																																																								
3	11	Options Appraisal Report (Update)																																																																								
	12	Outline Business Case (Phase 2+)																																																																								
	13	Detailed Design (Phase 2+)																																																																								
	14	Full Business Case (Phase 2+)																																																																								
	15	Construction (Phase 2+)																																																																								
	16	Monitoring and Evaluation (Phase 2+)																																																																								

Options Appraisal Study

The Options Appraisal Study will interact with both the Funding and Finance, and Demand Studies to provide a comprehensive and clear answer on the ultimate preferred option for the Mass Transit network in terms of mode, route choice and type of system. In reality, the Options Appraisal Report is the key first stage in the development of a Strategic Case for the OBC and will therefore provide a direct input into Stage 2 of the Delivery Strategy. In addition, the Options Appraisal Study will facilitate the progression of multiple dependent stages of work including the parallel Engineering Study, and the other Outline Business Case components.

Outline Business Case Requirements

Following (and partially in parallel to) the Accelerated Studies, there will be a need for an Outline Business Case in order to progress the scheme towards the expected likely requirement of public funding from Liverpool City Region Combined Authority. Given the need to service the early stages of the Wirral Waters development as a matter of priority, the business case will be drafted so as to support Stage 1 only at this initial stage, meaning that later phases of the Mass Transit network will require their own business cases.. However, to complete the OBC for Phase 1, some of the component cases will be most effectively drafted so as to refer to the entire Mass Transit Network. For other component cases, such as the Economic Case, we will need to and be able to complete only the analysis for Phase 1 of the scheme. In these cases we refer to Phase 1 to mean the initial phase of the Mass Transit Network to facilitate the early Wirral Waters components only.

Strategic Case

The Strategic Case for the Wirral Mass Transit OBC would cover the whole scheme and would present the strategic rationale for the system, articulating the core qualitative arguments for investment. The Strategic Case would reference and summarise the findings of the Options Appraisal Report ultimately describing the preferred option for investment, but it would put this in the context of the key strategic arguments, including for example:

- The need for economic regeneration in and around the Birkenhead and Wirral Waters areas including current high levels of deprivation and low levels of economic activity and the need to provide opportunities and activity in areas with large amounts of economically sterile land;
- The need to provide new housing development as stipulated by the Local Plan and Government requirements, and the limited number of suitable sites both brownfield and greenfield, puts additional pressure on planned residential development sites including Wirral Waters and Hind Street, and adds to the need to provide sustainable accessibility to these large residential developments;

Improving accessibility for existing residents and visitors to Birkenhead Town Centre and key locations with poor existing public transport connections such as Seacombe and areas south of Birkenhead Town Centre (including Tranmere and Higher Tranmere).

Economic Case

The Economic Case would be focussed on Phase 1 of the Mass Transit scheme only. In this case, the Economic Case would build upon the outputs of the Demand Study, enhancing and updating the calculation of benefits for the preferred scheme for Phase 1, and undertaking a value-for-money assessment. This would be performed on the core case and on several identified sensitivity tests for added robustness and rigour. It should be noted, however, that there is ample opportunity for parallel tracking of the various requirements of the business case

for later phases of the scheme and Economic Case work for later stages could potentially follow-on directly from the Phase 1 work referenced here.

Another key element of the Economic Case would be evaluation of potential Wider Economic Benefits (WEBs) in terms of the possible job creation and land value or GVA uplifts that might be attributed to investment in the scheme. At OBC stage, these would (where possible and permissible) be incorporated into the value-for-money assessments with any other WEBs presented at gross level and noted within the Strategic Case.

Financial Case

The Funding and Finance Study will cover a large proportion of the OBC requirements for the Financial Case at OBC, however at this stage more detailed costing including appropriate amounts of risk and contingency, will need to have been undertaken in order to establish the approximate funding ask from the primary funder (LCRCA).

As referred to within the Programme presented in Section 2 and described in more detail in Section 5, an engineering-led study will be required for the preferred Mass Transit option which should include elements of cost estimation. Given the need to accelerate and prioritise Phase 1 of the scheme to ensure delivery in line with Wirral Waters development schedule, it is likely that the Phase 1 elements of the engineering study would need to be prioritised to better understand likely cost requirements. These would then be presented within the Phase 1 Financial Case, alongside the identified preferred funding mechanism emerging from the Funding and Finance study.

Commercial Case

For the initial OBC, the Commercial Case would also be envisaged to cover only Phase 1 of the Mass Transit network, although as for the Economic and Financial Cases there is ample opportunity for the Commercial Case for later phases to be produced to follow on from Phase 1. In this case, the primary requirement of the Commercial Case would be to identify a suitable procurement route for delivering the scheme, and the various terms and standard forms of contract that would likely be chosen to facilitate this. To a certain extent, the procurement route for this type of major scheme is quite prescriptive, potentially requiring elements such as a Transport and Works Act order (TWAO) if the ultimate scheme involves major infrastructure such as tracks or power systems, and a main contractor under a design and build contract. Conversely, if the ultimate scheme is less infrastructure heavy, a simpler procurement route may be followed. In either case the Commercial Case is required to review the options available and select the most likely.

There will also need to be a comprehensive risk register for the scheme (which will be referenced in the strategic, commercial and Management Cases of the business case). In the case of the Commercial Case, the discussion will focus around the apportionment of risks, including particularly any risks that fall on the scheme deliverers, scheme sponsors, and scheme funders.

Management Case

The primary focus of the Management Case for the Wirral Mass Transit OBC would be associated with governance, including the attribution of key roles (such as sponsor, appraiser, funder etc) to the relevant partners. As these roles and the prevalent governance structure are unlikely to change significantly between Phase 1 and the remaining phases of the Mass Transit scheme, the Management Case would be geared towards the whole scheme rather than just

the first phase. In this way, it will only need a small update to support the business case for later phases of the works.

In addition to governance, the Management Case would provide initial details on areas such as stakeholder consultation, assurance and approvals and communications. It would also be supported by a number of ancillary documents including a Benefits Realisation Plan, a Monitoring and Evaluation Plan, and a Risk Management Strategy which would be referenced in the main body of the Management Case.

Summary of Costs for Accelerated Studies and OBC for Phase 1

The following table presents the approximate level of cost and time expected to be required to complete the Accelerated Studies and OBC as described above.

Table E.2: Summary of Accelerated Studies and Phase 1 OBC Costs

Workstage	Approximate Cost Range	Approximate Timescale
Funding and Finance Study	£30,000 - £40,000	12 weeks
Demand Study	£30,000 - £40,000	12 weeks
Options Appraisal Study	£15,000 - £25,000	12 weeks (but dependent on outcome of above)
Outline Business Case for Phase 1 (including all cases and ancillary documents)	£150,000 - £200,000	8 – 12 months (dependent on the outcomes of above and parallel Engineering Study)

Future Stages of Work

Future Stages for Phase 1

To complete Phase 1 of the Mass Transit network to the point of opening, a number of additional stages of work will be required to follow the submission of the Outline Business Case. These relate to the progression of the scheme through the business case process to allow an eventual successful funding decision, and the completion of detailed design work and construction once this has completed. Within this process there will be a need to convert the OBC described in this document to a Full Business Case (FBC) which can likely be undertaken in parallel with detailed design.

Prior to these tasks, however, a detailed Engineering Study will be required to investigate the ultimate preferred option (emerging from the Options Appraisal Study) and to provide guidance on the level of intervention, timescales, construction requirements and ultimately costs for the network. This will be required to feed into the OBC components as they are being compiled (particularly the Economic and Financial Cases) and will therefore be required to be commissioned to allow a start date within November 2020.

Future Stages for Phase 2 and Beyond

Following on immediately from the completion of the required Business Case work for Phase 1, there will be a need for an Outline and ultimately Full Business Case for Phase 2 and beyond. It is envisaged that these would commence drafting immediately following the submission of the Phase 1 OBC and would take as inputs the Accelerated Studies of Stage 1 and the Strategic and Management Cases from Stage 2. The successful completion of these Business Cases will ultimately unlock funding for the detailed design and construction of the wider network.

In parallel to this, there will be a need to undergo rigorous monitoring and evaluation for Phase 1 of the network which will hopefully be in the delivery phase as the business case and detailed design work for Phase 2 is being undertaken. This is expected to be undertaken over a number of years and will lead to significant lessons learnt for application within the delivery of later phases of the project.

1 Introduction

1.1 This Commission

Mott MacDonald were commissioned by Wirral Council in Summer 2020 to produce a Delivery Strategy for the identification, design, funding acquisition and delivery of a comprehensive Mass Transit network for Wirral. This report sets out the various stages involved in this process and identifies a robust set of tasks that are recommended to be completed to develop the network and progress towards delivery, and practical timescales to achieve this.

Mass Transit as a concept, refers to a high quality public transport mode providing regular frequency, high capacity and highly legible services (with instantly recognisable branding and distinct routes with clearly defined interchange points). Importantly Mass Transit can be formed of any one of a number of potential modes from rubber-tyred bus to steel-wheeled tram or tram-train), each with their own levels of guidance, propulsion, power and segregation. It should be noted that this Delivery Strategy is entirely mode agnostic with the workstreams described herein forming the envisaged methodology for prioritising and identifying the ultimate mode and routeing choices. Furthermore, the ultimate solution could potentially be formed from a combination of modes, or be phased to allow modes to evolve and change over time (for example using bus-based modes initially which are later replaced by steel-wheel fixed links once the demand for and popularity of a route have exceeded a certain point).

It is understood that delivery of the first phase of the Mass Transit Network will be required in mid-2022 to support the development of a key part of the Wirral Waters development by Peel Group, and the programme has been designed around this significant deadline. It should be noted that we believe delivery by this date to be challenging but achievable as long as the intervening tasks are completed as planned and there are no unforeseen delays to the programme. Further to this, and wider than the need for the system as generated by Wirral Waters, a Mass Transit Network is considered to be essential to support the ongoing regeneration of Birkenhead and surrounding areas as described within the Birkenhead Regeneration Framework, in which a lack of high quality public transport is seen as a major barrier to achieving its aims and objectives.

The Mass Transit scheme for Wirral has strong interfaces with a number of other ongoing major schemes, many of which are currently at Business Case stage including:

- the development of the Green Corridor between Birkenhead Central / Hind Street and Wirral Waters for walking, cycling and public transport including potentially the Mass Transit system;
- the business case to remove the flyovers adjacent to Birkenhead Central and remodel the Hind Street area to facilitate large-scale redevelopment; and
- ongoing regeneration work on the A41 corridor south of Birkenhead, and to the north of Wirral Waters between Seacombe and New Brighton.

The strategy to deliver the Wirral Mass Transit network has been developed in conjunction with Wirral Council and Peel Land and Property as a key part of the project team, with supporting input from Peel's own consultant team. A series of meetings with relevant parties (including Wirral Council and Liverpool City Region Combined Authority) have taken place where the direction, contents and programme of the strategy have been discussed and a mutually agreed consensus achieved. This document provides a plan that has been agreed by Wirral Council

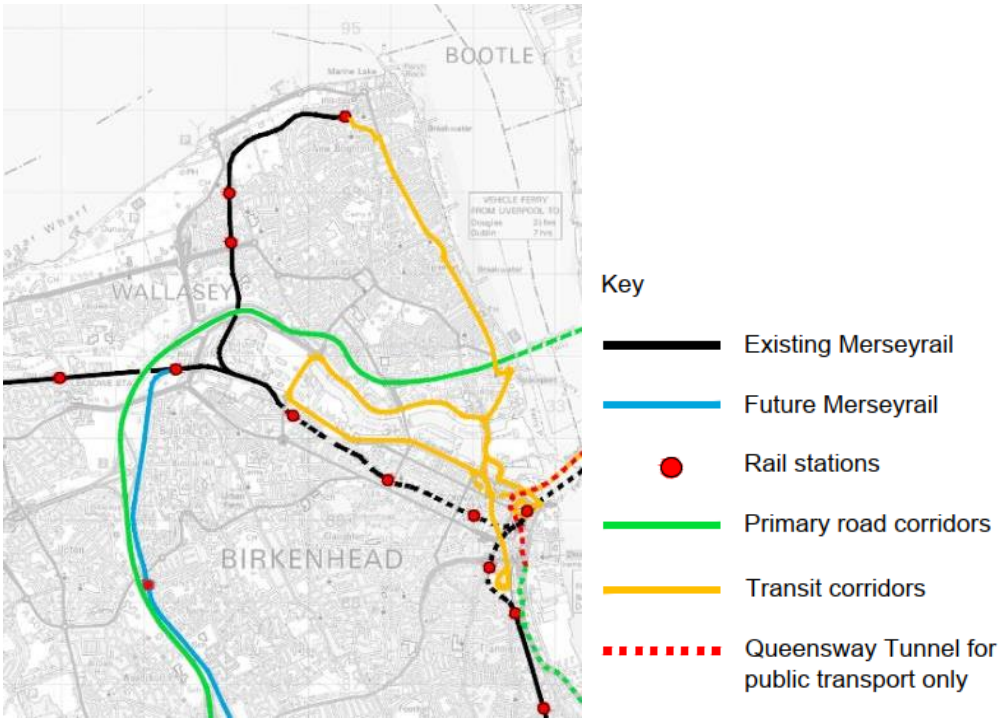
and Peel Land and Property, and provides a detailed look at the stages of work to be pursued in order to progress scheme development towards delivery.

1.2 Scheme Concept and Need

A Mass Transit network for the Birkenhead and Wirral Waters area of the borough has been discussed for several years, however it is only recently that the recommendations from several major transport and regeneration studies (including Wirral's Strategic Transport Framework Action Plan, transport feasibility studies for the A41 North area and Wirral Waters, and the Birkenhead Regeneration Framework and its daughter Development Action Plans for key areas within the borough) have aligned to prioritise development. Each of these studies has concluded that a key barrier to the continuing sustainable regeneration of the area in the context of the ongoing climate emergency, is the lack of high quality, frequent, legible and affordable public transport provision to connect the various growth poles and to provide good levels of interchange with existing transport network. Whilst the Merseyrail system provides excellent levels of service in the areas of Wirral that it serves, it is recognised that it has limited penetration into the key regeneration areas of Birkenhead and therefore a new system is required to provide a last-mile connection and open up the various development areas for sustainable accessibility.

The transport feasibility studies for the A41 North and Wirral Waters regeneration zones provided some more detail on potential route alignments and mode choices, without committing to one mode over another. A concept drawing for this envisaged network from these studies is shown in the figure below:

Figure 1.1: Concept Mass Transit Network – Wirral STF Action Plan



Source: Mott MacDonald

In particular the Mass Transit network is considered to be needed due to the absence of feasible high-quality public transport alternatives in large parts of the borough and including several key regeneration zones. These include areas such as Hind Street / Birkenhead Central (on the south side of the town centre), Woodside and Hamilton Square towards the river, the Central Business Quarter based around Europa Boulevard and extending into the shopping centre and market, the Hamilton Park area to the north, and Wirral Waters which forms the boundary between Birkenhead and Wallasey town areas. Whilst many parts of Birkenhead and wider Wirral enjoy excellent access to Merseyside's existing Mass Transit mode – Merseyrail, a large proportion of the development zones noted above are too remote from this network with limited existing public transport opportunities to properly connect. A key aim of the Mass Transit system will be to provide that last-mile connectivity and provide a bridge between the sites themselves and the Merseyrail network potentially acting as feeder services and ensuring that the system complements rather than competes with existing provision.

In some cases, such as Wirral Waters, there is a need to overcome an existing impasse in which large-scale development in large and predominantly vacant areas currently unserved by public transport is not possible due to sustainable accessibility concerns, but at the same time provision of public transport has not been previously considered feasible due to lack of demonstrable demand. This Delivery Strategy will look to recommend ways in which this impasse can be overcome by a comprehensive Demand Study to pick up the potential demand from a variety of sources including future proposed development.

At the same time, another significant historical barrier to development of potentially expensive high-quality public transport solutions, has been the lack of an identified funding source and/or financing package for the scheme. This Delivery Strategy will review the requirements of a robust Funding and Finance Study which would review various sources of funding, model the various options and provide advice and guidance on the likely funding input from a local or national public funding source (such as Liverpool City Region Combined Authority and / or the Department for Transport and Transport for the North).

Finally, the Delivery Strategy will guide the reader through the required business case process, which will be necessary in order to access significant sums of public funding. This provides detail to the required stages of the process including Options Appraisal (at which final decisions are made on a preferred mode and route for the various stages of the network), strategic rationale, economic justification and other important items of evidence with which to leverage the required buy-in from all parties.

It is noted that, as part of the transport strategy to service the Wirral Waters development, Peel and their consultants, have developed a concept known as Streetcar over more than a decade – this is described as a scalable, sustainable, localised, affordable and transformational light-rail 'feeder service' to the Mersey Rail network and Ferry Terminals that utilises existing assets within the first phase, linking Tower Road to Shore Road and joining the Wirral Heritage Tramway leading to Woodside Depot. This work will be highly important in the development of the ultimate scheme, particularly the early phases thereof to ensure that immediate transport and connectivity shortfalls are met. Hhowever the work on the Birkenhead Regeneration Framework and other regeneration plans within the area have shown that a more comprehensive network to cover a wider geography is ultimately required and it is considered vital that this network be considered in a holistic manner to ensure that the ultimate product functions efficiently and optimally for the borough as a whole.

1.3 Document Structure

Following this introductory section, this Delivery Strategy Report is structured as follows:

- Section 2 provides an overview of the identified Delivery Strategy for the Mass Transit system and presents the envisaged programme towards delivery of the network
- Section 3 discusses in detail the accelerated study requirements proposed for the Delivery Strategy including a Demand Study, Funding and Finance Study, and Options Appraisal process
- Section 4 provides more detail on the business case process and the required tasks for Outline Business Case – the likely key required document in order to gain programme level entry into the various public funding mechanisms for the network
- Section 5 then describes the required future stages of work including progression towards and through Final Business Case, detailed design of the network and ultimately construction and delivery of the whole scheme.

This final Delivery Strategy report follows on from an Evidence Base report produced earlier in this process which summarises the economic and social need for the Mass Transit Network, This Evidence Base report is appended to this document.

2 Delivery Strategy Overview

2.1 Introduction

A proposed high level programme for delivering the Wirral Mass Transit Scheme has been developed by the Delivery Strategy team (including representatives from Wirral Council and Peel Land and Property as well as Mott MacDonald reflecting the fact that the strategy has been produced as a joint enterprise), and is shown overleaf in Figure 2.2. The programme runs from September 2020 to December 2025, by which time the full Mass Transit scheme is expected to be delivered. There is a shorter-term focus on delivering Phase 1 of the scheme to service the build out of Wirral Waters including the Legacy Development which is expected to be completed during 2022, however the programme is structured in the expectation that the whole scheme will be completed in the longer term.

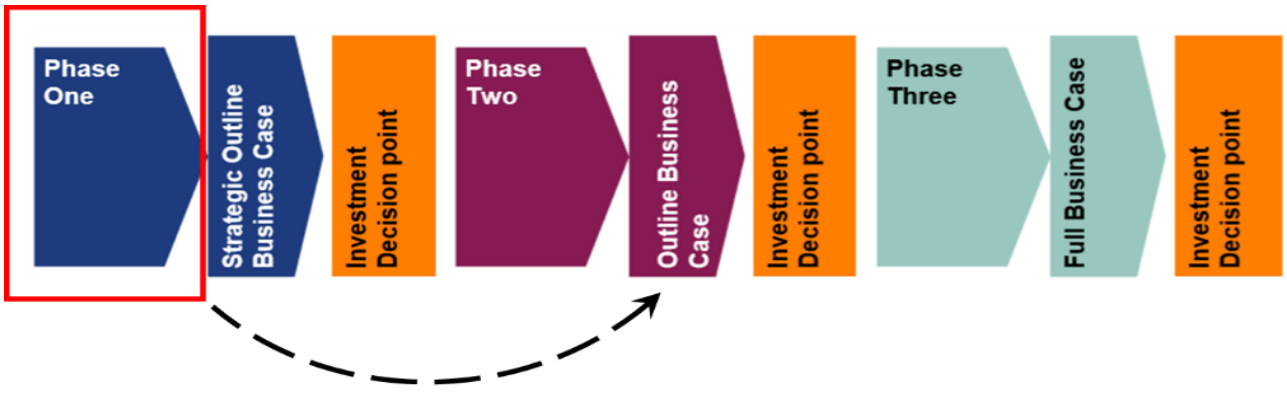
2.2 Proposed Approach

Usually the first stage of work to deliver a scheme with public funding is a Strategic Outline Business Case (SOBC). However, in the case of Wirral Mass Transit scheme, a series of studies have already been completed to aid its development, which fulfils many of the Transport Analysis Guidance (TAG) requirements for an SOBC.

Transport Analysis Guidance (TAG) refers to a set of regularly updated guidance notes produced by the DfT to inform the role of transport modelling and appraisal in applications for funding or support from central government for proposed transport schemes. In cases where the scheme is not to be centrally funded, it is considered best practice and many authorities (including Liverpool City Region Combined Authority) require TAG alignment in scheme applications for which they are to be the primary funder. TAG provides information on all the requirements for each stage of a transport scheme business case and must be followed if the scheme is to be assessed favourably in relation to allocation of public monies.

Therefore, it is recommended that the Wirral Mass Transit scheme proceeds immediately to Outline Business Case stage, with the gaps for the SOBC stage filled by specific pieces of accelerated work to address these, namely a funding and finance study, a demand study and an options appraisal to TAG compliant standards.

Figure 2.1: Proposed Approach for Wirral Mass Transit



2.3 Delivery programme

For this reason, the delivery strategy is broken into three stages:

- Stage 1: The initial stage covers all phases of the scheme and proposes accelerated studies to bridge the gap between existing work and readiness for the Outline Business Case and related aspects. These accelerated studies would cover demand for the scheme, methods for funding and financing it, and deciding preferred choices in terms of mode and routeing for the system. All of these elements must be confirmed at the outset to steer the overall development of the scheme. Additionally, a robust evidence base is required to justify the reasons for instigating change in the form of a new Mass Transit scheme in north Wirral – this will be provided by the Strategic Case of the Outline Business Case. This, along with an understanding of how the scheme's delivery will be managed, need to be compiled for all stages of the scheme before further decisions and investment is made on the early phases.
- Stage 2: The second stage of the delivery programme focuses on prioritising progression of the first phase of the scheme to enable some early components of the Wirral Waters development to be delivered. The Mass Transit system is expected to be vital in providing sustainable accessibility to the area which is currently poorly served by public transport. This stage encompasses the remaining parts of the OBC pertaining to Phase 1 which aren't covered in the first stage, plus a decision from the funding body. Assuming funding is awarded, detailed design and costings will need to be completed prior to construction.
- Stage 3: Once the first phase of the scheme has been designed and is ready for construction work, the third stage of delivery can commence, with the remaining parts of the Outline Business Case pertaining to the whole scheme completed. As with the second stage, this would be followed by the funding decision, detailed design, costings and construction of the rest of the scheme not included within Phase 1.

The summary programme presented on the following page (Figure 2.2.) shows just the primary stages and high level headings of each component of the Delivery Strategy. A more detailed programme is shown in Appendix A spread across Figures A.1 – A.6.

In the programme, we have inserted the Engineering Study (referred to in section 5 of this documents) as a key component of Stage 2, however this is envisaged to be completed in parallel to the other components and not as part of the same workstream. To denote this, this line is in grey italics.

The following table shows the key envisaged milestones of the Delivery Strategy.

Table 2.1: Key Milestones of the Delivery Strategy

Ref	Milestone	Envisaged Date (Week Commencing)
1	Delivery of Demand Study	30th November 2020
2	Delivery of Funding and Finance Study	30th November 2020
3	Appraisal Specification Report for Economic Case	30th November 2020
4	Options Appraisal Report for Whole Scheme	14th December 2020
5	Commissioning of Parallel Scheme Engineering Study	December 2020
6	Completion of Outline Business Case and CA Decision to Progress for Phase 1 of Mass Transit Network	July 2021
7	Opening of Phase 1 of Mass Transit Network	August 2022
8	Completion of Full Business Case and CA Decision to Progress for further phases of Mas Transit Network	August 2023
9	Opening of Phase 2+ of Mass Transit Network	May 2025

Figure 2.2: Wirral Mass Transit Delivery Programme (Summary)

Stage		Tasks	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25
1	1	Options Appraisal (Whole scheme)																																																																						
	2	Demand Study (Whole scheme)																																																																												
	3	Funding and Finance Study (Whole scheme)																																																																												
2	4	Business Case - Strategic and Management Cases (Whole scheme)																																																																												
	5	*Engineering Feasibility Study (Whole scheme)*																																																																												
	6	Business Case - Economic, Financial and Commercial Cases (Phase 1)																																																																											
	7	Funding Body Decision (Phase 1)																																																																											
	8	Detailed Design (Phase 1)																																																																											
	9	Construction (Phase 1)																																																																											
	10	Monitoring and Evaluation (Phase 1)																																																																											
3	11	Options Appraisal Report (Update)																																																																											
	12	Outline Business Case (Phase 2+)																																																																											
	13	Detailed Design (Phase 2+)																																																																											
	14	Full Business Case (Phase 2+)																																																																											
	15	Construction (Phase 2+)																																																																											
	16	Monitoring and Evaluation (Phase 2+)																																																																											

3 Accelerated Study Requirements

3.1 Introduction

Within Stage 1 of the delivery programme, i.e. the initial stage which covers all phases of the scheme, there are three pieces of work which are recommended to be accelerated to progress the delivery of the Mass Transit scheme and bridge the gap between the current position and Outline Business Case tasks which are required as soon as possible. These are:

- a Funding and Finance study to look at ways in which funding and revenue can be generated for the scheme and the various options for financing this;
- a Demand Study which looks at the potential demand that may be generated to use the proposed network and the costs and revenue that may be produced as a result, and
- an Options Appraisal Report which forms a key initial stage of the Outline Business Case process and will establish the preferred option for the network as a whole.

These work items form part of the programme which will deliver the scheme. They will feed into the Outline Business Case (see Section 4) which will be required to secure any public funding.

The relationship between these three pieces of work and the approximate order in which they are envisaged to be undertaken is shown in the following diagram.

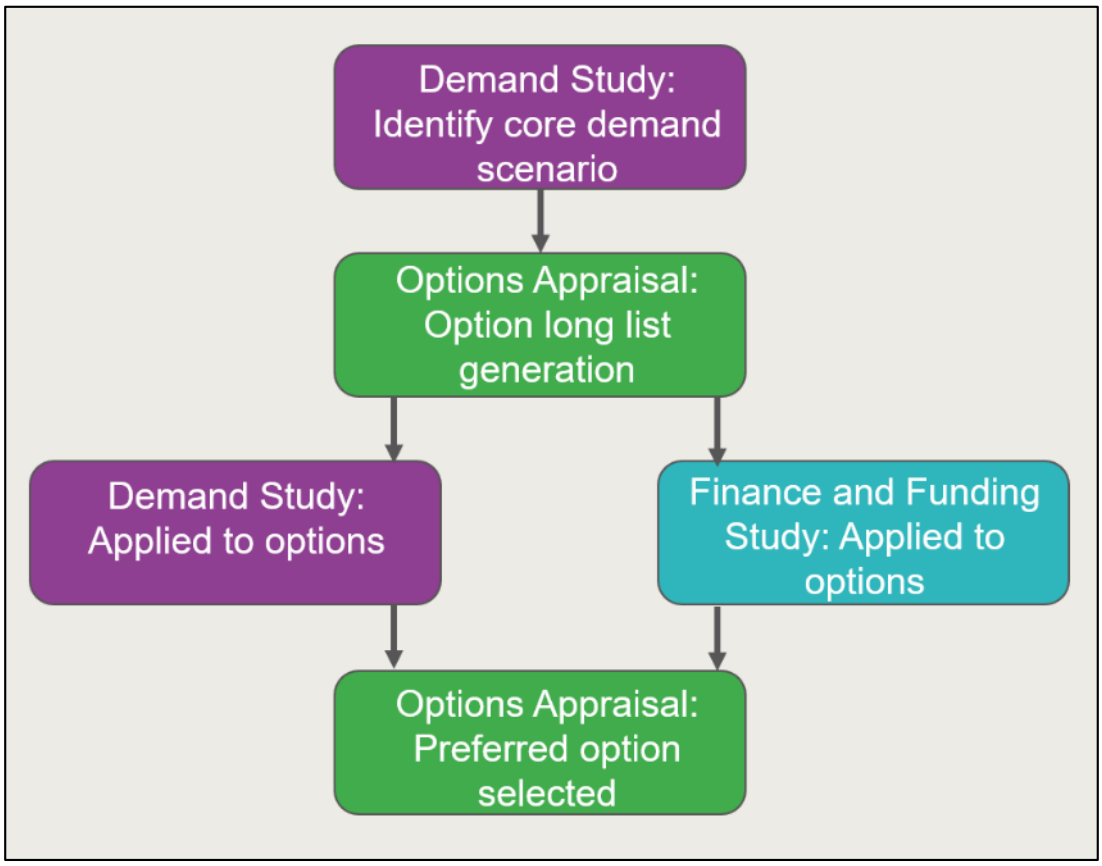


Figure 3.1: Stage 1 Accelerated Studies Relationship

The following sections explain the role of each of these pieces of work within the delivery programme, and an outline of what the work should cover including scope, inputs, outputs and any other considerations.

3.2 Funding and Finance Study

3.2.1 Purpose

For any large investment, it is necessary to examine the options available and decide upon a preferred funding stream. Although at this stage detailed costs are not known, but expected to be determined within the business case work and costings work, it is anticipated that some public funding will be required to cover at least some of the costs of designing and building the Mass Transit scheme, if not all of the costs.

3.2.2 Methodology

3.2.2.1 Identification of revenue and funding streams

The first step of a funding and finance study will be to confirm appropriate potential funding streams which could be used to contribute to the capital cost of the proposed scheme/s. For each design option considered (e.g. Bus Rapid Transit (BRT), Light Rail (LRT)), a shortlist of funding streams should be agreed with the wider project team at inception, with key assumptions and development scenarios which underpin modelling of these funding streams.

Once identified and modelled over an agreed investment period, the remaining funding gap to be funded by the primary scheme funder (most likely Liverpool City Region Combined Authority) can then be identified.

3.2.2.2 Funding options

In addition to the primary likely funding mechanism, there are a number of potential contributory funding options that could be brought into play to fund the Mass Transit system. The Mass Transit scheme could be funded by a combination of land value capture mechanisms to capture the benefits from the significant development enabled by the scheme, plus farebox surplus. These are summarised in the following table.

Table 3.1 Funding options

Funding category	Funding option	Rationale
Passenger related	Passenger farebox surplus	The scheme itself and the increased demand generated by the development it unlocks will result in passenger farebox revenue. Any surplus beyond operational costs can be modelled and used to contribute to the capital cost of the scheme.
Property-related	Development Proceeds	Earnings from public sector land development dependent in part or in total on the Scheme to proceed
	Business Rates Retention	Growth in Business Rates receipts accruing to Wirral Borough Council and HMT for development dependent in part or in total on the Scheme to proceed
	Developer Contributions	Payments made by developers to Wirral Borough Council associated with planning permission.

3.2.2.3 Cashflow model

A cashflow model should be developed which combines the capital costs and funding revenue streams into one model, within a set of agreed parameters such as base year and a common price base, investment period, discount rate etc.

The output of the cashflow model will be the total incremental real, nominal and present values across the investment period for each funding stream, to compare against the real, nominal and present value of the capital requirements. The cashflow model can be adjusted to account for different scenarios, design options and sensitivities to assess how these affect the cashflow outcomes.

The Cashflow model produced would be consistent with LCR CA's assurance framework and TAG compliant to allow easy adaptation for inclusion as part of the Financial Case (see Section 4).

3.2.2.4 Commercial Strategy

As well as a funding and financing strategy, a high-level commercial strategy would be beneficial to explore the commercial structuring options, along with risk allocation, scheme consents and procurement strategy. These would usually form part of the Commercial Case within the Strategic Outline Business Case, but given the intention to accelerate the process and progress straight to Outline Business Case, as explained above, these elements need to be completed and therefore could be included within the Funding and Finance study.

The commercial structuring should consider:

- Land and asset ownership
- A 'long list' typology of rail/other transport infrastructure commercial structures, such as delivered by Network Rail alone, other public bodies entirely such as HS2, or by the private sector enabled by Network Rail.
- Use of the findings from the funding assessment to descope certain delivery structures from the 'long list' (e.g. if there is no solution where the project could be entirely funded from property-related revenues, certain structures will be irrelevant as they require third party ownership)
- Examination of the remaining, relevant delivery structures in more detail

Under any delivery structure, a key consideration should be risk allocation between the different parties involved in the project. The ideal approach is for risk to be allocated to those parties best able to manage that risk. Key risks should be identified (e.g. demand, financing), and then allocated between the appropriate party for a finite number of relevant delivery structure agents.

At a high level, the consents required to deliver the scheme should be considered, which typically fall into two types: statutory, primarily relating to land requirements, and regulatory, primarily relating to the future operation of the scheme. In addition to the above, a procurement strategy should also be developed, which covers the different assets within a number of work packages and a high level strategy of how they could be procured.

3.2.3 Inputs

High level estimated capital costs based on benchmark schemes and work already undertaken by Peel, would be a direct input to this piece of work, along with iterative outputs from the demand study which forecast the levels of revenue which may be generated by the scheme from ticket sales, land and property, and other streams. In turn, the outputs of this study would

inform the ongoing demand work and hence the two work items are proposed to be undertaken simultaneously.

3.2.4 Outputs

The ultimate aim of the funding and finance study and commercial strategy is that it would inform the funding acquisition process through the prescribed business case development route by providing information on the optimum amount and sources of funding required for a number of options. This will take into account the variation between available funding sources for various route and modal options and thereby aid with the process of selecting a preferred option at Options Appraisal stage.

The outputs of the Funding and Finance study will directly contribute to the ultimate Financial Case element for the business case but will also provide information required earlier than this to facilitate the decision making process.

3.2.5 Likely fee requirements and timescales

It is likely that a study such as that described above would cost in the region of £30,000-40,000 excluding VAT. The exact price would depend upon the number of design options, the inputs required and the parameters of the modelling scenarios.

To complete a funding and finance study and commercial strategy as described above, a timescale of around 3 months would normally be required.

3.2.6 What does this mean for the Delivery Strategy?

A Funding and Finance study is required immediately in order to investigate and model the various available options for funding the Mass Transit Network, both in terms of initial capital investment and ongoing maintenance and revenue costs. The study would look at multiple options and produce a cashflow model to assess the impact and ultimate suitability of each. In addition, a Commercial Strategy would be produced to review the optimum operating model for the delivery of the network, to assign roles and responsibilities and to allocate duties and risk.

3.3 Demand Study

3.3.1 Purpose

A demand study for Wirral's Mass Transit Scheme would need to be completed in order to better understand the potential uptake of the service and the likely revenue that such a system could generate. In particular, there is a need to understand the likely demand for the system when the intermediate stages of regeneration within the various zones of interest are delivered, despite the current lack of development in many of these areas. As a result, the demand study must use some innovative techniques for exploring likely future levels of demand under a number of different development scenarios.

The demand study's main purpose would be to identify and compare the benefits of the scheme for a number of options, including the likely revenue that could be generated under each scenario. Ultimately this information would be directly transferrable to the Economic Case component of the scheme business case, however earlier than that it would be a vital tool for the Options Appraisal exercise, allowing the various value-for-money implications of the options to be properly compared and assessed.

3.3.2 Methodology

3.3.2.1 Scenario definition

Demand modelling requires the definition of a set of scenarios, from which demand forecasts can be produced both 'with' and 'without' the scheme(s) to be tested. The 'Core Scenario' would be accompanied by a set of alternative scenarios which reflect the major uncertainties in forecasting, with sensitivity testing also undertaken around other uncertainties, e.g. model parameters, scheme-specific considerations etc.

Core Scenario

Core scenario definition is central to the use of the demand forecasts in any future business case stage. TAG Unit M4[1] states that it should be based on the 'most unbiased and realistic set of assumptions.' Critical inputs would include:

- Central estimates of model parameters and demand sensitivities from established sources
- Central estimates of demand drivers such as those for competing modes (fuel costs for car etc.), using latest TAG Databook (currently May 2019) at the time of the modelling
- Inclusion of other local exogenous and endogenous inputs and schemes based on their level of certainty (see Section 3.3.2.2)
- Control of exogenous planning inputs, at a regional level, to totals provided by the DfT through their TEMPro software (used to create National Trip End Model (NTEM)).

To assist with the latter aspect, a land use scenario planner should be built to combine local planning data with NTEM control totals, in light of the fact that TEMPro is not fully reflective of the true nature of local growth in Wirral.

Do Minimum

The Do Minimum (DM) scenario is the base (core, low or high) scenario without the Do Something (DS) options in place. This includes the delivery of any 'near certain' or 'more than

[1] See: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/805256/tag-unit-m4-forecasting-and-uncertainty.pdf

likely' transport schemes which will have a significant impact on the scheme, i.e. those with committed, or a clearly identified, funding and finance package.

Do Something Scheme Options

The DS options add the proposed intervention to the respective (core, low or high) DM scenario.

For each extension it is proposed to test DS options in two phases:

- Initial station/stop location decisions – linked to modes or agnostic as applicable
- Testing of DS options across a package of mode, station/stop locations, routeing, and frequencies.

Alternative Scenarios

Recognising uncertainties in the forecasting, it is standard practice to have a finite set of alternative scenarios coupled with sensitivity testing. For the purposes of these studies a 'low' and 'high' scenario should be defined. These are primarily based around different inputs and assumptions around background development growth, as opposed to other changes in the transport network (rail/bus/LRT or competing modes):

- The high growth scenario includes some of the most likely sources of growth that were excluded from the core scenario, e.g. additional development
- The low growth scenario excludes some of the least likely sources of growth that were included in the core scenario, e.g. lower levels of total development.

Consistent low and high scenarios should be developed through an uncertainty log.

3.3.2.2 Uncertainty Log

Based on the template in TAG Unit M4, an uncertainty log should be developed as part of the modelling and appraisal processes, summarising principal assumptions and uncertainties, covering:

- Model parameters
- National uncertainties in travel demand, e.g. demographic projections and travellers' behaviour and tastes
- National uncertainty in travel cost, e.g. fuel costs
- Local uncertainty in travel demand, e.g. proposed developments
- Local uncertainty in travel supply/cost, e.g. the implementation of other schemes.

This would be a live document which informs the wider project risk register and also a set of sensitivity tests around the preferred option(s) in the modelling and appraisal. The risks and uncertainties can then, where appropriate, inform the wider option appraisal process via feedback processes.

Regarding potential development and the delivery of other transport schemes which are likely to have a material impact on demand and supply, the uncertainty log can contain the assessment of the 'level of certainty', with only those deemed 'near certain' or 'more than likely' included in the core scenario. Less certain developments may be included in the 'high growth' (alternative) scenario, and their inclusion can be captured in the uncertainty log.

3.3.2.3 Sensitivity Tests

Sensitivity tests follow from the uncertainty log, and cover inputs and assumptions relating to:

- Scheme design and definition
- Assumptions, e.g. around demand ramp-up, phasing and delivery of local development etc
- Key interdependencies
- Model parameters
- Other key inputs not covered within the main alternative scenarios.

The main sources of existing uncertainty should be considered, with testing focused on the core scenario under different sensitivity tests.

COVID-19

At the time of writing (Summer 2020), the global COVID-19 pandemic is a source of uncertainty unlike that experienced in travel demand modelling within the profession's history. There are no historic parallels which are readily comparable. All that can be done at this stage is to develop a set of 'levers' from which demand forecasts can be flexed, suitable for taking account of emerging guidance, noting that the impacts include:

- Exogenous economic impacts influencing the overall propensity to travel
- Preferences between modes changing, i.e. due to perceptions of personal safety changing
- Supply side impacts, e.g. the potential need for lower capacities to maintain social distancing measures.

With the potential opening dates of the extensions many years in the future, these levers are much simplified when compared against schemes with more imminent proposed delivery dates (including those noted in Section 3.3.2.7). In the longer term, all that is needed is a set of potential suppression factors (assuming the impacts on passenger demand are only negative).

The Department for Transport (DfT) is expected to issue guidance on COVID-19 sensitivity testing over forthcoming months, allowing these initial starting assumptions to be developed for sensitivity testing.

Impact of Scheme Parameters

It is likely that a set of sensitivity tests will be required around the DS scheme parameters, outlined in Section 3.2.2.1. These will emerge as the demand and parallel studies progress.

Other Sources of Uncertainty

Other principal sources of uncertainty are likely to include:

- Model parameters
- Macro and regional economic conditions
- Competing mode effects, e.g. competition from the car and bus.

3.3.2.4 Demand modelling

This sub-section considers the source for existing local passenger demand estimates, outlines the rationale behind the discussed approach to future year demand modelling, provides detail on the proposed approach, and then defines accompanying key inputs and assumptions.

3.3.2.5 Baseline Passenger Demand Estimates

Although relatively modest at present, given the limited build-out of development, it would be important to gain an understanding of existing public transport passenger demand within the designated area of Wirral, as this would enable:

- Incremental demand forecasting for existing stops and stations, responding to DM influences and any changes brought about by the DS options (e.g. changes to the timetable)
- Demand at comparator stops and stations to be analysed and transposed to new stops and stations.

To enhance the robustness of the modelling, it would be desirable to have the following detail within the baseline passenger estimates:

- Production and attraction[2] (P-A) at stops/stations. This differentiation is important as it allows the trips associated with residential (production) and commercial (attraction) addresses to be distinguished
- Ultimate origins and destinations of passengers around the stops/stations
- A sufficient level of zoning and spatial detail around stations such that the rate of demand decay with distance (access/egress times and costs) can be estimated with a sufficient degree of detail
- Segmentation of demand for each P-A flow by journey purpose – commute, employer's business and 'other'
- Time period choices or factors – this is important when considering some of the endogenous changes in the core scenario.

There is no single readily available source to provide detail of PT passengers' ultimate origins and destinations. Example sources would include passenger or household surveys, mobile phone matrices, and/or smartcard data if information on residential location could be shared. Data from, or for, the Liverpool City Region Transport Model (LCRTM) may also provide the necessary input.

In the absence of a single common source, and to provide a common approach across the area, plus the proposed extensions, details held within 2011 Census datasets could be used. Although dated, these show Output Area (OA) level home based (production) demand for commute trips by public transport, and corresponding Workplace Zone (WPZ) based (attraction) demand.

This combination of sources enables station-to-station P-A demand matrices to be pushed back to unique OS AddressBase points within each OA or WPZ and a set of decay functions to be estimated. These functions show how trip rates decline with distance from the stations or stops – typically in a non-linear manner. This work helps determine the optimum station/stop locations and the extent of any interaction between stations/stops.

To produce updated baseline passenger demand estimate, the following tasks should be undertaken:

- Compile existing P-A public transport matrices – most likely 2017 to align with the latest LCRTM base year
- Estimate a distribution of demand from stations to ultimate origins and destinations within Wirral and comparator areas in the LCR (which reflect comparable sensitivities of development), using Census data and other 'best available' sources to provide the most robust estimation

[2] Assuming all passengers make an outbound and inbound trip, then the place of production is where they start their first (outbound) trip and the attraction is where they end it. In the majority of cases the production is the home/residential location, and for commute to work trips the attraction is the place of employment (these then become Home Based Work (HBW) trips under standard modelling terminology).

- Estimate implied trip rates for all stations (per dwelling and commercial establishment/job), with an understanding of variations to help transpose findings to the Mass Transit network
- Map the trips to a new zone system since it is likely that LCRTM would not be spatially detailed enough.

3.3.2.6 Key considerations for Modelling

Some critical issues which would impact on the approach to demand modelling include:

- Availability of data, both demand and supply
- Consideration would need to be given to the localisation of zone level population and employment, e.g. proximity to stations given the intrinsic link between proximity and trip rates per dwelling, capita, employee etc.
- Flexibility on the mode(s) to be used. The modelling approach would need to be flexible to sensitivity test alternatives (e.g. 'low cost' alternatives for TAG compliance) or adapt to changes as the demand, economics, operations, and design workstreams are reconciled (or advances in technology mean that journey time or mode assumptions change). This is primarily in terms of quality, so can be handled via either In-Vehicle Time (IVT) multipliers or mode-specific constants
- Desired market segmentation. There are standard considerations regarding journey purpose and car availability from TAG and the UK rail industry's Passenger Demand Forecasting Handbook (PDFH). However, there is a growing appetite for a more nuanced approach which picks up propensity to use transit modes by person and employment type, linked to Wider Economic Impacts (WEIs). Bespoke approaches would offer greater flexibility in defining market segmentation
- Detail and availability of exogenous inputs, e.g. population and employment, ultimately linked to segmentation in the demand model. An understanding of displacement is at the heart of TAG compliant appraisals, and it would be important to understand how planned development links to displacement of existing activity within overall LCR wide controls. Overarching is the consideration of how the LCR economy, and its population, is expected to change in forthcoming decades
- What key impacts would need to be captured, e.g. whether crowding effects, station/stop choice, or route choice would be likely to be affected and the modelling would then reflect them to accurately capture impacts.

3.3.2.7 Overview of Modelling Approaches

At present (June 2020), the existing 2017 version of LCRTM is the main available modelling suite. However, given it is a 'strategic' model it does not contain sufficiently detailed zoning, at this stage, to be immediately deployed for a study of this nature. Even if the zoning was more detailed, it is likely to need updating or extending for assessing the scheme in question (e.g. a specific calibration and validation exercise in the area to be served by Mass Transit). New modelling tools would therefore be required to help inform the demand assessment of potential transit systems.

In line with many demand studies for public transport, the study would present an opportunity to evolve the demand modelling approach(es) between stages. It is expected that the approach adopted at the Outline Business Case (OBC) stage would be the final one given that the Full Business Case (FBC) places greater emphasis on the Financial, Commercial and Management Cases.

An initial consideration of modelling approaches produced the following shortlist of potential approaches for testing the demand impacts of the Mass Transit network:

1. Trip rate-based assessments based on local catchments and characteristics, plus comparator stations on the existing network. This would include elasticity-based elements and could therefore be considered uni-modal. These follow the principles set out in the UK rail industry's Passenger Demand Forecasting Handbook.
2. Use of a standalone public transport network model with an elasticity-based framework to forecast demand changes and route choice functionality to understand integration of, and transfer between, public transport sub-modes (bus, rail, Mass Transit, and ferry).
3. Variable Demand Models (VDMs) such as LCRTM, combining some, or all, of the wider behavioural responses a major scheme may be expected to produce, including trip generation, mode choice, time period changes, destination and route choice. As noted, elements of the VDM could be removed or 'turned off'. In addition, VDMs for major urban areas include both highway and public transport network models (i.e. Approach 2 could be considered as a sub-component of this approach) to carry out the assignment of demand to routes and provide estimates of time and cost changes to inform mode choice, destination choice etc.

The options would not necessarily be mutually exclusive. Approach (2) is often developed as a sub-model of (3), and ultimately scheme coding/level of service definitions, zoning etc. can be, or should be, made consistent across the two/three. Approach (1) should be considered independent of (2) and (3) though and would require less resource and time to develop. This is at the expense of some behavioural choices and less flexibility for deploying the model for other uses. It can typically offer greater flexibility regarding some scheme nuances, e.g. location-specific factors which can be difficult to capture in the larger scale models. Approach (3) would require considerably more time and resource than (2) – both in build and operation but would come with the benefit of the more complex behavioural responses covered in TAG Unit M2.

The development of a 'twin track' approach, combining (1) and (2), would have the benefit of two largely independent forecasts which could be subject to reconciliation. This is naturally offset, in part, by some inefficiencies from having two standalone modelling approaches.

3.3.2.8 Recommendations

The following recommendations aim to balance the short and long term needs of the project, focused foremost on assessing the proposed Mass Transit network, alongside the potential requirements of funding bodies such as Liverpool City Region CA (LCR CA) and the DfT. The aim is to provide maximum value to the scheme promoters and funders, confidence in the demand forecasts, and build on use of updates to LCRTM:

1. If Wirral Waters development timescales are to be met, then there is a need to adopt an approach in which we can be confident of producing demand estimates for the potential network by autumn 2020. Approach #1 would offer a proportionate approach with certainty of delivery.
2. Adoption of Approach #1 with #2 and/or #3 would provide a significant opportunity for reconciling the two sets of forecasts with the aim of providing greater confidence in the robustness of the final forecasts (regardless of their source), but would clearly require the largest amount of time to undertake which is not likely to be available, at least in the appraisal of phase 1 of the network.

As such, the recommendation for the Demand Study would be to follow Approach #1 at least for Phase 1 with potential updating and use of the full VDM (LCRTM) model at an OBC stage.

3.3.3 Proposed Approach

3.3.3.1 Planning Inputs – Land Use Scenario Planner

Exogenous inputs around projections for population and employment would be critical to the demand forecasting. The DfT's National Trip End Model (NTEM) outputs are a standard input but do not reflect local planning data and underlying trajectories in the economy and planning for sub-district areas, e.g. significant growth in population and employment at major development sites (such as Wirral Waters).

In order to aid the creation of core, low and high scenarios, and ensure that total development levels are controlled at the LCR level to TEMPro or Regional Economic Model (REM) totals, a land use scenario planner would be required for the Liverpool City Region and a wider 'buffer area'.

This would provide spatially detailed inputs to demand modelling and flexibility regarding different assumptions about aggregate control levels (e.g. for the LCR) and the extent to which any development is displacement from elsewhere. To accommodate sufficient spatial detail around potential new stations, we would propose that the analysis is undertaken at a combination of Census Lower Super Output Area (LSOA) and LCRTM zones – LCRTM zoning is not currently considered to be spatially detailed enough (it could be updated for later work). LSOAs nest within the Middle Super Output Areas (MSOAs) used in TEMPro (noting that this DfT software only considers planning totals at the district level, and there is a considerable degree of 'smoothing' across areas applied within its processes).

The land use scenario builder would combine:

- LCR plus a wider 'travel to work area' (LCR+) wide controls on total population and employment change, e.g. from the NTEM v7.2 planning data, or alternative trajectories such as the LCR's REM
- Application of controls across different timeframes
- Incorporation of development data from Wirral Council and Peel including the major development sites of Wirral Waters and other locations across Birkenhead, controlled to the 'LCR+' wide totals for population and employment. The local input has TAG levels of certainty applied from Unit M4[3] Table A2, with two groups ('near certain' and 'more than likely' forming the core input) and all other development being an additional non-core input;
- Options to overlay additional development data, e.g. additional, more speculative development totals where these do not align with the local planning inputs; and
- Use of pre-existing trends at the zone level, e.g. from ONS mid-year population estimates and the Business Register & Employment Survey (BRES), to infill any shortfalls after the development data has been applied.

The core, Business As Usual (BAU), scenario would assume NTEM level growth as far as 2040 (the 20 year demand cap horizon for public transport forecasts in TAG). Within this, local development is applied to adjust the distribution. Higher and lower scenarios are produced with adjustment to the control totals and the application, or otherwise, of additional local development.

[3] See: https://www.gov.uk/government/publications/TAG-tag-unit-m4-forecasting-and-uncertainty-may-2018

3.3.3.2 Trip Rate Estimates

Based on the baseline data for comparator stops and stations, the following elements need to be quantified:

- Catchments for each comparator stop/station, i.e. percentile access and egress distances for trips produced and attracted to each
- Trip rates per capita by different distance bands from the stop/ station and journey purposes, related to OS AddressBase data on residential and commercial properties in each distance band. We would recommend 200m bands up to 800m, 400m bands up to 2km, and then a final group of 2km to 5km for longer access, e.g. by Park & Ride, Kiss & Ride, or bus. This represents the decay of trip rates as distances from the stations increase in a fine grain manner.

An initial estimate of the 'ghost' demand should be produced i.e. as if they were opened today (e.g. 2017 as per current LCRTM base year), which accounts for:

- Any Level of Service differentials versus the comparators, e.g. if the network will operate at a different speed or lower frequency/greater headway than the comparator using the PDFH elasticity framework and differences in Generalised Journey Time, or if different modes will be used and the 'quality' will differ
- Abstraction from existing stations. This would be assessed using station choice models for competing catchments, and the comparison of trip rates for the stations where they do compete
- Increase in rail demand due to the improved accessibility to the network – trip rates typically 'decay' as distance from the station increases up to the maximum access/egress distance.

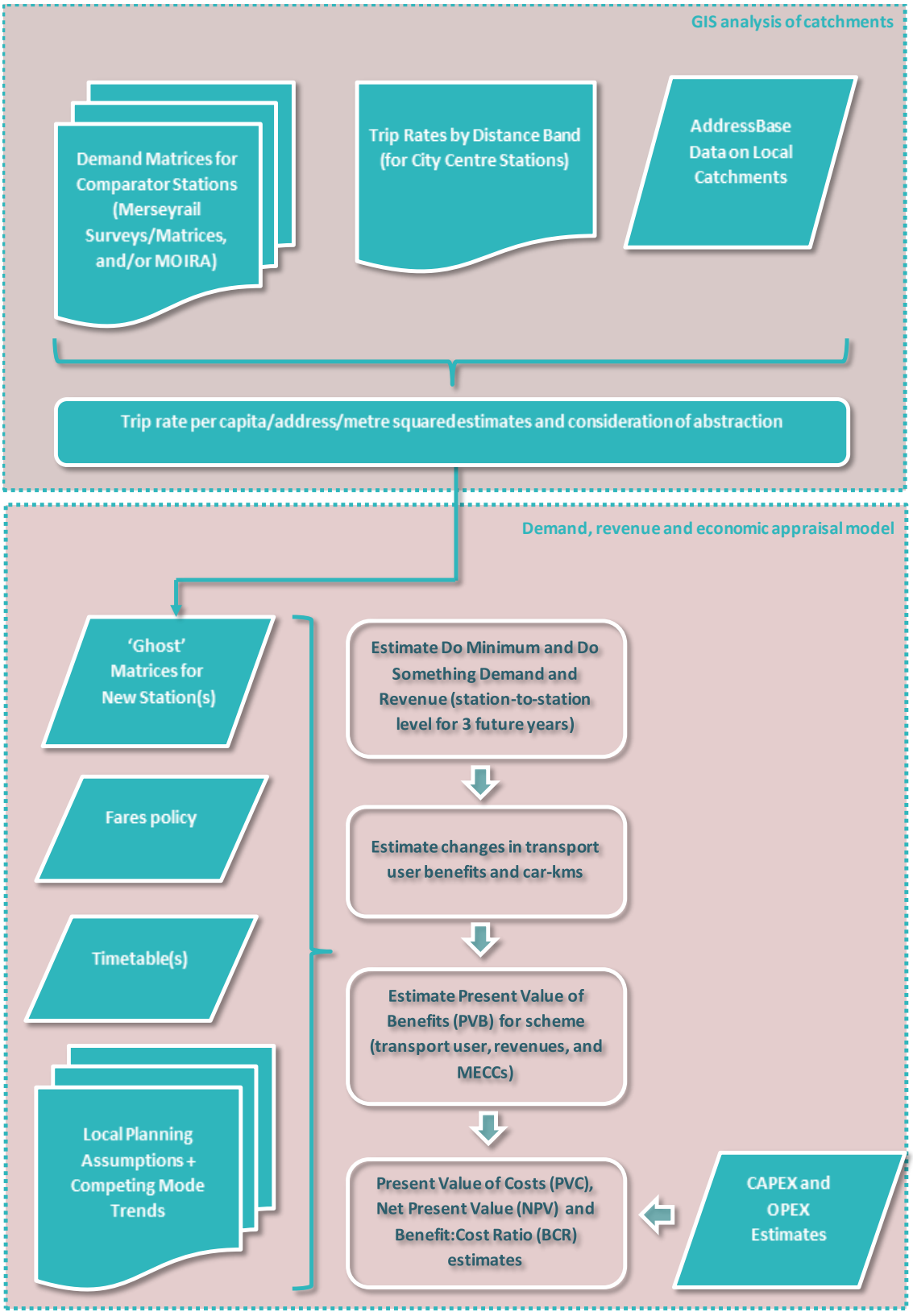
These demand matrices would have full origin and destination station detail so that relevant Economic Case inputs regarding revenue and changes in public transport kms, and thus car kms for Marginal External Costs of Car (MECC) estimates, can be rapidly produced.

Future demand is then forecast for the opening year and two further 'modelled' years. This uses standard PDFH and TAG methodologies, sensitive to:

- The 'External Environment' (exogenous), inclusive of population, employment, and GVA/GDP changes. It will be important to localise the land use changes in the former reflecting their proximity to the stations [or otherwise];
- 'Competing modes', inclusive of car and bus competition (exogenous); and
- 'Endogenous' changes such as fares, 'quality', and the timetable, measured using the standard Generalised Journey Time (GJT) formulation.

Figure 3.2 summarises the overall approach and how it ultimately feeds the economic appraisal, alongside other inputs, for future business case stages.

Figure 3.2: Demand Modelling Approach – Initial Stages



3.3.3.3 Demand Distribution for New Stations

Having estimated the total gross and net demand at the stop/station, with the latter accounting for abstraction), the most likely demand distribution would be estimated. This would draw on comparator stations, but these may not be the same as those used to establish the trip rates. For distribution it would be more important to draw on local comparators. Trip length distributions could then be assessed against the comparators used in demand estimation.

3.3.3.4 Revenue Estimates

Revenue impacts would be captured directly in the model for existing flows. A fares matrix could be derived for the new stations and the total demand and assumed distribution used to estimate gross and net revenue impacts.

3.3.3.5 Calibration and Validation

Part of the model calibration and validation would be in-built into the main model build, with consideration of the most appropriate comparator stations, potential abstraction between stations (or competition between the new), and definitions of catchments all critical components. These would be documented in the uncertainty log and flexibility in model build would allow for rapid sensitivity testing in model application.

The post-validation stage would then compare the final outputs for the initial 2017 'ghost' demand estimates against comparator stations or stops. The best approach, should there be sufficient comparator stops or stations, would be to hold back selected stations and then 'back work' the initial forecast to see how they compare (validation). Calibration could then adjust the assumptions and parameters to improve the certainty of the final outputs. In some cases variations in trip rates by distance band could be real effects, e.g. due to differences in socio-demographics of areas, variations in the level of competition from other modes, ingrained travel-to-work patterns, and station competition, i.e. clusters of stations with high degrees of overlap and station choice. These considerations would be brought to bear in the calibration and validation, initially in a qualitative manner, which could be developed further at subsequent stages of business case development.

3.3.4 Data requirements

Table 3.2 sets out the data and information that would be required to complete the study.

Table 3.2: Wirral Mass Transit Data and Information Requirements

ID	Item	Source(s)
1	Base demand matrices	• Merseytravel
2	Information on Mass Transit specification	• Existing documents and high level consideration
3	OS AddressBase	• Available via licence with Merseytravel
4	LCR+ Regional Population and Economic Forecasts	• DfT National Trip End Model (NTEM), or Regional Economic Model (REM) if available
5	Local Planning Data	• Wirral Council • Peel for Wirral Waters
7	Do Minimum Demand and Supply changes	• Merseyrail Rolling stock and bus renewal programmes – expected demand and supply side changes from Merseytravel and Wirral BC
8	Liverpool City Region Transport Model	• Merseytravel (Mott MacDonald manage and operate it on their behalf)

9	Census travel-to-work and other inputs	• Freely available

3.3.5 Other Considerations

3.3.5.1 Modelled Years

For each network option demand forecasts should be produced for three future years, for example:

- Opening year
- A single intermediary year will be modelled, assumed to be halfway between the opening year and 2040
- 20 years after the appraisal year (2020), in line with the recommended demand cap from TAG Unit A5.3[4].

3.3.5.2 Fares Policy

A standard fares policy should be agreed, potentially with Merseytravel, e.g. RPI+X% from a specific date. The DfT cap with no real terms increases relative to the GDP deflator would be applied after 20 years. As of May 2019, the current assumption is RPI+0%.

3.3.5.3 Demand Ramp-Up

Recognising that travel behaviour can take a significant amount of time to adapt to major changes in transport supply, evidence from PDFH v6 on the 'lagged' effects of passenger demand could be used to create an associated 'ramp-up rate'. This should be applied after the other demand modelling stages. The PDFH v6 recommends 'end of year' lags of:

- 53% for year 1
- 78% for year 2
- 90% for year 3
- 98% for year 4.

Sensitivity testing would be appropriate around these values, i.e. the impact of a more prolonged ramp up of demand.

3.3.5.4 Demand Cap

Beyond the final modelled year (2040) demand would be extrapolated in line with the regional population forecast (or national if this is the only available source for a given year). Sensitivity tests would need to be produced around this assumption.

3.3.6 Outputs

The following outputs from the Demand Study would be expected to be provided (inclusive of ramp-up):

- Net change (DS – DM) in passenger demand, revenue, passenger-kms and user impacts per annum, in totality for the network (and phases), over the 60-year appraisal period from year of opening (revenue in both constant, base year prices and 2010 discounted market

[4] See: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/715482/tag-unit-a5-3-rail-appraisal-may-2018.pdf

prices). These could be segmented by journey purpose and provide the full effects across both new and existing flows from the proposed extensions and associated service changes;

- For each modelled year (by journey purpose):
  - Gross demand, revenue and passenger-kms at new stops / stations
  - Abstracted demand, revenue and passenger-kms from existing stops/stations (exclusive of the wider timetable changes noted below)
  - Net demand, revenue, passenger-kms and user impacts at new stops/stations
  - Net demand, revenue, passenger-kms and user impact changes across the network from the wider timetable changes

3.3.7 Likely fee requirements and timescale

It is likely that a study such as that described above (Approach #1) would cost in the region of £30,000-£40,000 excluding VAT.

To complete a Demand Study as described above, a timescale of around 3 months would normally be required.

3.3.8 What does this mean for the Delivery Strategy?

A Demand Study is required immediately in order to ascertain the level of expected passenger numbers that could potentially use the new Mass Transit system including those new trips generated by developments such as Wirral Waters and other development sites identified in the Birkenhead Regeneration Framework, those generated by growth in the attractiveness and prosperity of the area, and those transferring from other existing modes. The Demand Study would also provide an understanding of the amount of revenue generated by the expected new passenger demand and, in conjunction with the Funding and Finance Study, whether this it would be ultimately self-sustaining or whether it would require subsidy from another source.

The study would provide much of the initial information required for the Economic Case of the OBC as described in more detail in Section 4.

3.4 Options Appraisal Report

3.4.1 Purpose

The Options Appraisal Report (OAR) forms an integral part of the business case process, to identify and assess a range of options which could be developed and implemented. The appraisal process aims to result in a preferred option from a long list of potential solutions. The OAR is usually completed between the Strategic Outline Business Case and Outline Business Case, so that a preferred option is identified in advance of the OBC and can then be further progressed in terms of finances, commercial viability and deliverability within the OBC. In this case, given the recommendation that the SOBC stage be bypassed as described in previous sections, the OAR would be undertaken after the Demand and Funding and Finance work to coincide with the commencement of early work on the OBC.

It is acknowledged that some options appraisal work has already been completed as part of the body of work that has been built up around Wirral Waters, however there remain some aspects of the DfT's TAG guidance which have not yet been addressed, and a need to expand the Options Appraisal out to a more holistic network to cover the entirety of the Birkenhead Regeneration Framework area and beyond.

3.4.2 Scope

It is considered essential that the Options Appraisal process should be focussed on the Mass Transit system as a whole given that the preferred option in terms of mode, phasing and geographical coverage will need to be optimised for the ultimate network rather than the initial phases only. Whilst, there are other elements, such as the route for Phase 1, which can be appraised without consideration of the whole scheme in order to accelerate the delivery of Phase 1, it will be important to understand how Phase 1 ties into the ultimate network and it is therefore recommended that an appraisal of routeing (at least at high-level) be undertaken for the whole network as part of the Options Appraisal process.

3.4.3 Methodology

3.4.3.1 Scheme Context, Scope and Objectives

To set the context for the Mass Transit system and begin to present the case, a review would need to be undertaken of the socio-economic context of the Birkenhead and Wirral area, along with the existing transport network. To a large extent, this work has already been completed within existing studies, such as the Wirral Waters Feasibility Study and Wirral Strategic Transport Framework Action Plan, and much of this work could therefore be adapted for this piece.

An important output of this exercise is in the development of a set of scheme objectives and the derivation of a logic map to guide the options appraisal process from these objectives to the ultimate outputs. The objectives would ultimately form a vital metric against which the long list of options would be appraised. The full scope of the network in terms of geographical area and requirements would also be defined at this stage to set the limits of the scheme to be covered by any single intervention.

3.4.3.2 Need for Intervention

The first stage of the options appraisal process, according to the Department for Transport's guidance 'The Transport Appraisal Process', is an options development process. This would involve identifying the need for intervention and developing a range of options which could

address a clear set of locally developed objectives for the scheme which express the desired outcomes. This would summarise the need for public transport intervention in and around Wirral Waters, and why intervention, in some form, is the best solution and what the implications would be of no investment. Clearly for Wirral Mass Transit, a key consideration is the future demand related to the development of Wirral Waters and other key regeneration areas, the majority of which are yet to begin.

3.4.3.3 Options generation

A range of possible solutions in terms of mode and routing, including a number of strategic alternatives which present lower cost or differently focused interventions, would then be gathered which have the potential to address the challenges identified. Some of this work has already been undertaken and can be used within this options appraisal process. For a consistent, TAG compliant process, all possible options should be included and considered, and should include a range of modes, approaches and scales of intervention.

3.4.3.4 Options sifting and appraisal

The long list of options generated in the previous stage would be appraised against a set of criteria to include the scheme objectives defined previously, but also to address other important considerations such as constraints and deliverability. This could include an initial high-level sift to remove non-viable options, or those that would immediately fail to address the objectives identified for the Mass Transit scheme.

Once any options that are unable to pass this first sift have been removed, the feasible potential options would be taken forward for further appraisal. The appraisal could incorporate a range of toolkits and datasets, and would include the outputs form the Demand and Funding and Financing Studies, Geographical Information Systems (GIS) analysis, current travel accessibility, data from, or for, Liverpool City Region Transport Model, social and distributional impacts assessment, along with desktop data, policy and plan reviews.

3.4.4 Inputs

The existing work undertaken in relation to Wirral Mass Transit, such as feasibility reports and transport options appraisal work, would be vital inputs into the options appraisal work. In addition to this, the outputs from the Demand and Funding and Finance studies will be essential to inform the option identification and appraisal work. Data such as travel-to-work and other census datasets, and plans for the build out of Wirral Waters and other regeneration areas would be used to determine the most suitable scheme for Wirral Mass Transit.

3.4.5 Likely fee requirements and timescale

It is likely that a study such as that described above would cost in the region of £15,000-£25,000 excluding VAT.

To complete the Options Appraisal study as described above, a timescale of around 6 weeks would normally be required.

3.4.6 What does this mean for the Delivery Strategy?

The Options Appraisal Study will interact with both the Funding and Finance, and Demand Studies to provide a comprehensive and clear answer on the ultimate preferred option for the Mass Transit network in terms of mode, route choice and type of system. In reality, the Options Appraisal Report is the key first stage in the development of a Strategic Case for the OBC (see Section 4) and will therefore provide a direct input into Stage 2 of the Delivery Strategy. In addition, the Options Appraisal Study will facilitate the progression of multiple dependent stages of work including the parallel Engineering Study described in Section 5, and the other Outline Business Case components.

3.5 Interactions between the accelerated studies

Outlined above are the purpose, scope and likely fees and timescales of the Funding and Finance, Demand and Options Appraisal workstreams. There will need to be a strong degree of integration and collaboration between the three workstreams, with outputs of one becoming inputs of another.

The first steps of the Demand study should be completed first, to identify the core demand scenario. From this, a long list of options can be generated. These options will be subject to the funding and finance and demand study analysis, from which a preferred option will be selected for further progression. This demonstrates the close-knit and integrated approach required to successfully deliver this programme within the desired timescales.

In addition to the above, consideration will need to be given to the interaction between the Mass Transit scheme and other projects currently being progressed by Wirral BC. The Birkenhead Regeneration Framework has recommended a significant number of regeneration projects throughout Birkenhead and surrounding areas which will all have a significant interdependency with Mass Transit. In particular the ongoing Green Corridor scheme (which is likely to provide a direct route for the Mass Transit system between Birkenhead Central / Hind Street and Wirral Waters via the Town Centre), the Hind Street regeneration project involving the removal of the existing flyovers and the reconfiguration of the road network to the south of the town centre, and the ongoing A41 South Corridor study will have significant interface with Mass Transit. As such, there will be a need for significant interactions between the project leads for the various studies and regular lines of communication.

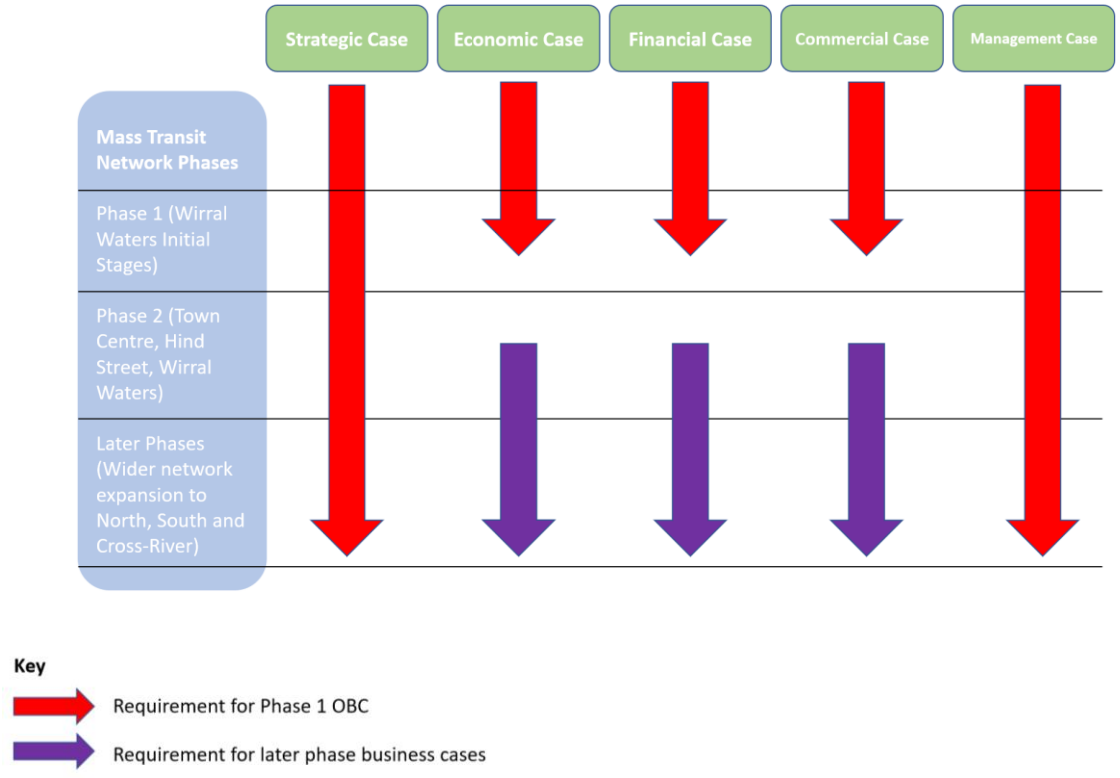
4 Outline Business Case Work

4.1 Introduction

In this section, we introduce the standard DfT-approved TAG compliant 5-case business case and outline what is required for each component of the key Outline Business Case (OBC) stage of this – the stage that will be completed immediately following the completion of the Stage 1 Accelerated Studies as described in the previous section to facilitate the progression of Phase 1 of the Mass Transit system (to service the early stages of the Wirral Waters development). To complete the OBC, some of the component cases will be most effectively drafted so as to refer to the entire Mass Transit Network, which we have described as the 'Whole Scheme' in the text. For other component cases, such as the Economic Case, we will need to and be able to complete only the analysis for Phase 1 of the scheme. In these cases we refer to Phase 1 to mean the initial phase of the Mass Transit Network to facilitate the early Wirral Waters components only.

This is shown further in the following graphic.

Figure 4.1: Business Case Component Case Coverage Requirements for Phase 1



Completion of the Five-Case Business Case process is the standard requirement for applying for funding for transport investment from public bodies. DfT stipulates that business cases must be compliant with TAG to access public funding, although the assurance frameworks vary a little between awarding bodies. The process ensures that public money is spent on schemes which have benefits and are viable. It enables all schemes to be assessed consistently.

The standard process has three stages:

- Strategic Outline Business Case
- Outline Business Case
- Full Business Case

As the scheme progresses through the stages, the business case becomes more detailed. The early stages focus on the scheme's purpose, how it meets the needs or addresses a problem, and how it aligns with broader policy objectives. There is some consideration of the benefits of the scheme, whether the scheme is financially viable and can be managed and delivered successfully. As the scheme progresses through the business case process, the financing, commercial viability and deliverability of the scheme become more of the focus. The tasks presented in the sections below reflect TAG requirements. Prior to developing the Outline Business Case, Wirral Council, Peel and the identified business case appraiser (assumed to be Liverpool City Region Combined Authority), should agree the requirements and the assurance framework of the funding body to which the application is being made, to ensure the business case is completed satisfactorily. Similarly, the level of detail of designs (concept or detailed) and associated costings expected at OBC stage would need to be agreed with the potential funder.

The desire for the first phase of Wirral Mass Transit to be accelerated is considered possible within the business case structure. This would ultimately require an initial OBC that covers the Strategic and Management Cases for the whole scheme, with the economic, commercial and Financial Cases focusing on the delivery of Phase 1. A further OBC addendum for the later phases would then be required to present the Economic, Commercial and Financial Cases for the later elements of the scheme.

4.2 Strategic Case – Whole Scheme (Phase 1 and Later Phases of the Network)

4.2.1 Rationale and requirements

The purpose of the Strategic Case is to determine whether investment is needed; the strength of the Strategic Case underpins the whole application for funding. The Strategic Case draws on available datasets and evidence to demonstrate the case for change to provide a clear rationale for the scheme and show how it contributes to the investment priorities of Wirral Council.

Strategic Case Tasks	Detail
Scheme description and wider context	• Detailed descriptions of the whole scheme • Context on the position of the schemes within the overarching Wirral Waters proposals
Strategic alignment	• Review of local, sub regional and national policy to evidence the scheme's fit with the strategy for Wirral Council, the LCRCA and the DfT will be undertaken.
Case for intervention	• Comprehensive review of evidence and develop a robust evidence base to capture the key problems and issues which intervention will alleviate • Drawing on the evidence base, the key issues will be identified and combined in a holistic manner to establish a rationale for investment • Consideration of what would happen if no intervention was made
Measures for success	• Development of key performance indicators against which success will be measured. These should be closely aligned with the strategic objectives for the scheme and will form the basis of the Monitoring and Evaluation plan which will be developed at a later stage.

Strategic Case Tasks	Detail
Stakeholder involvement	• Stakeholders should be identified, in conjunction with Wirral Council and Peel, and a plan for engagement and communicating with them as the scheme progress will be drawn up. • The consultation plan and any stakeholder feedback garnered through the development of the OBC will be included as supplementary documentation.
Strategic risk, constraints and dependencies	• Strategic risks and constraints which could influence scheme development will be identified. These will include physical, political and legal risks, and mitigation measures should be suggested. • A review will need to be undertaken of the wider work going on in transport, development and regeneration in the Birkenhead and Wirral Waters area to understand the interactions and interdependencies. In part this has already been done.
Options	• The options stage here summarises the work already undertaken within the Options Appraisal process and report which will have already been completed.

4.2.2 What does this mean for the Delivery Strategy?

The Strategic Case for the Wirral Mass Transit OBC would cover the whole scheme and would present the strategic rationale for the system, articulating the core qualitative arguments for investment. The Strategic Case would reference and summarise the findings of the Options Appraisal Report ultimately describing the preferred option for investment, but it would put this in the context of the key strategic arguments, including for example:

- The need for economic regeneration in and around the Birkenhead and Wirral Waters areas including current high levels of deprivation and low levels of economic activity and the need to provide opportunities and activity in areas with large amounts of economically sterile land;
- The need to provide new housing development as stipulated by the Local Plan and Government requirements, and the limited number of suitable sites both brownfield and greenfield, puts additional pressure on planned residential development sites including Wirral Waters and Hind Street, and adds to the need to provide sustainable accessibility to these large residential developments;

Improving accessibility for existing residents and visitors to Birkenhead Town Centre and key locations with poor existing public transport connections such as Seacombe and areas south of Birkenhead Town Centre (including Tranmere and Higher Tranmere).

4.3 Economic Case for Phase 1 (to support the early development of Wirral Waters)

4.3.1 Rationale and requirements

The Economic Case primarily covers the transport and wider economic benefits of a scheme, and a calculation of the costs to estimate the benefit to cost ratio. This is used to report a Value for Money Statement, a TAG requirement for compliant business cases. The demand study described above in Section 3 will cover a significant proportion of the requirements for the Economic Case in the outline business case.

The elements of the Economic Case are described in the following table.

Economic Case Tasks	Detail
Options considered	• This recaps the different potential options for Wirral Mass Transit and how the options will have their transport and wider economic benefits assessed.
Estimating transport benefits	• TAG gives clear guidance on how transport economic benefits must be estimated, in TAG A1.1. Appraisal will be completed using TAG 5.3 on rail appraisal or 5.4 on marginal external costs. • Demand for the scheme will be taken from the Demand study as described in Section 3. • Changes to the transport network will be modelled in LCRTM / Wirral Transport Model as applicable to understand variable demand impacts and the more detailed network impacts. From this, transport economic benefits, accident benefits, wider impacts of transport appraisal and reliability benefits will be calculated.
Estimating wider economic benefits	• An existing toolkit, such as Mott MacDonald's Transport Economic Assessment Model (TEAM) can be used to assess the wider economic impacts of the preferred scheme. • The economic assessment will focus predominantly on jobs and GVA, and the propensity of the scheme to bring forward employment and housing sites for development at Wirral Waters. • The first stage of the assessment will be to identify development sites in and around the Mass Transit scheme location that could be unlocked as a result of its development, or which could come forward more quickly than would otherwise be the case. The second stage would be to use TEAM or a similar package to assess the potential gross and net economic benefits to the local economy associated with developing these sites.
Value for Money Statement	• The costs and benefits of the scheme will be reported in a Value for Money Statement which combines the quantitative and qualitative benefits • Optimism bias will be applied, as per TAG guidance, at a level agreed with the potential funder.
Appraisal Summary Table (AST)	• The outputs of appraisal undertaken in the development of the Economic Case will be compiled in a TAG compliant AST.

4.3.2 What does this mean for the Delivery Strategy

The Economic Case would be focussed on Phase 1 of the Mass Transit scheme only. In this case, the Economic Case would build upon the outputs of the Demand Study, enhancing and updating the calculation of benefits for the preferred scheme for Phase 1, and undertaking a value-for-money assessment. This would be performed on the core case and on several identified sensitivity tests for added robustness and rigour. It should be noted, however, that there is ample opportunity for parallel tracking of the various requirements of the business case for later phases of the scheme and Economic Case work for later stages could potentially follow-on directly from the Phase 1 work referenced here.

Another key element of the Economic Case would be evaluation of potential Wider Economic Benefits (WEBs) in terms of the possible job creation and land value or GVA uplifts that might be attributed to investment in the scheme. At OBC stage, these would (where possible and permissible) be incorporated into the value-for-money assessments with any other WEBs presented at gross level and noted within the Strategic Case.

4.4 Financial Case for Phase 1

4.4.1 Rationale and requirements

The Financial Case sets out the affordability of the scheme proposal and its funding arrangements. A significant proportion of this work should have already been completed within the Funding and Finance piece described in Section 3. The tasks for a Financial Case are shown in the table below.

Financial Case Tasks	Detail
Costing methodology	• How are the costs for the scheme to be devised?
Costs	• Forecast costs for the scheme, applicable to the level of design detail agreed with the funding body.
Budgets / funding cover	• The details of the funding profile to be used for the scheme, stating the funding to be asked from the funding body. • Information is required to outline Wirral Council's capability to meet financial requirements and liabilities, and the provisions for dealing with cost overruns.

4.4.2 What does this mean for the Delivery Strategy

The Funding and Finance Study will cover a large proportion of the OBC requirements for the Financial Case at OBC, however at this stage more detailed costing including appropriate amounts of risk and contingency, will need to have been undertaken in order to establish the approximate funding ask from the primary funder (LCRCA).

As referred to within the Programme presented in Section 2 and described in more detail in Section 5, an engineering-led study will be required for the preferred Mass Transit option which should include elements of cost estimation. Given the need to accelerate and prioritise Phase 1 of the scheme to ensure delivery in line with Wirral Waters development schedule, it is likely that the Phase 1 elements of the engineering study would need to be prioritised to better understand likely cost requirements. These would then be presented within the Phase 1 Financial Case, alongside the identified preferred funding mechanism emerging from the Funding and Finance study.

4.5 Commercial Case for Phase 1

4.5.1 Rationale and requirements

The Commercial Case evidences the commercial viability of the preferred option package and provides the procurement strategy that will be used to engage the market. It also covers risk allocations and key contractual issues. It can largely be based on policies and procedures in place at Wirral Council and within the wider LCRCA, and it is expected that this information would be provided to whoever is producing the business case to be included and adapted as required.

The required contents of the Commercial Case for OBC are shown in the table below.

Commercial Case Tasks	Detail
Output based specification	• Summation of the requirement of outcomes and outputs against which alternative procurement routes and options can be considered
Procurement	• An outline of the procurement options available to Wirral Council for scheme delivery. In part, this is covered within the commercial strategy produced as part of the funding and finance study. • The merits and drawbacks of the procurement options should be identified and a preferred procurement option selected
Statutory and other consents	• Outline details of statutory and other consents, and the estimated timescales for securing them
Sourcing options	• Outline of potential sourcing options, with a preferred option identified
Payment mechanisms, pricing framework and charging mechanisms	• Outline of proposed payment mechanisms, pricing frameworks and charging mechanisms
Risk apportionment	• Owners of risks should be identified and where possible the percentage of risk borne by public and private sector apportioned
Contract length and management	• High level overview of contract length and management details

4.5.2 What does this mean for the Delivery Strategy?

For the initial OBC, the Commercial Case would also be envisaged to cover only Phase 1 of the Mass Transit network, although as for the Economic and Financial Cases there is ample opportunity for the Commercial Case for later phases to be produced to follow on from Phase 1. In this case, the primary requirement of the Commercial Case would be to identify a suitable procurement route for delivering the scheme, and the various terms and standard forms of contract that would likely be chosen to facilitate this. To a certain extent, the procurement route for this type of major scheme is quite prescriptive, potentially requiring elements such as a Transport and Works Act order (TWAO) if the ultimate scheme involves major infrastructure such as tracks or power systems, and a main contractor under a design and build contract. Conversely, if the ultimate scheme is less infrastructure heavy, a simpler procurement route may be followed. In either case the Commercial Case is required to review the options available and select the most likely.

There will also need to be a comprehensive risk register for the scheme (which will be referenced in the strategic, commercial and Management Cases of the business case). In the case of the Commercial Case, the discussion will focus around the apportionment of risks, including particularly any risks that fall on the scheme deliverers, scheme sponsors, and scheme funders.

4.6 Management Case – Whole Scheme

4.6.1 Rationale and requirements

The Management Case is designed to demonstrate the proposed scheme is deliverable within the required timescales, and identifies key risks facing the scheme. The tasks for the Management Case, which would need to apply to the whole scheme, are detailed below.

Management Case tasks	Detail
Evidence of similar schemes	• Evidence needs to be provided of Wirral and/or Peel's capability to deliver similar schemes as the scheme promotor, to time, budget and specification.
Project dependencies	• Potential project dependencies should be identified, and mitigation measures developed to provide assurance of successful scheme delivery.
Project plan	• In conjunction with Wirral Council, a project implementation plan should be developed, outlining delivery timescales, key project milestones, management of other partners and stakeholders involved in the scheme delivery, and anticipated wider impacts as the scheme is delivered.
Governance, organisational structure and role	• Proposed scheme governance, with details of roles, responsibilities and decision-making hierarchy should be described.
Assurance and approvals	• An appropriate assurance and approvals process should be developed, and the processes required to obtain these confirmed.
Communications and stakeholder management	• A plan for managing and communicating with stakeholders should be developed to at least an outline stage.
Risk analysis	• A risk register should be developed and regularly reviewed and updated as necessary throughout the development of the business case process.

Management Case tasks	Detail
Benefits realisation	• An outline benefits realisation plan should be produced to identify the benefits of the scheme and how they will be measured. The scheme's key beneficiaries should be detailed, along with outcomes, baseline measures, responsibilities and timeframes for the realisation of the scheme's benefits.
Monitoring and Evaluation	• A Monitoring and Evaluation plan should be developed in accordance with the funding body's assurance framework. It should cover the impacts and outcomes of the scheme, and the performance indicators which will be used to measure these, to act as a proxy for the scheme's success.

4.6.2 What does this mean for the Delivery Strategy?

The primary focus of the Management Case for the Wirral Mass Transit OBC would be associated with governance, including the attribution of key roles (such as sponsor, appraiser, funder etc) to the relevant partners. As these roles and the prevalent governance structure are unlikely to change significantly between Phase 1 and the remaining phases of the Mass Transit scheme, the Management Case would be geared towards the whole scheme rather than just the first phase. In this way, it will only need a small update to support the business case for later phases of the works.

In addition to governance, the Management Case would provide initial details on areas such as stakeholder consultation, assurance and approvals and communications. It would also be supported by a number of ancillary documents including a Benefits Realisation Plan, a Monitoring and Evaluation Plan, and a Risk Management Strategy which would be referenced in the main body of the Management Case.

4.7 Likely fee requirements and timescale

It is difficult to place a definitive fee value on the requirement to produce an OBC for Phase 1 as described in this section because much of the ultimate fee will be dependent on the outcome of the Accelerated Studies described in Section 3, and on the parallel Engineering Study that will be required to inform the design and produce a robust set of cost estimates for use in the Economic and a Financial Cases in particular. However by using benchmark examples of other similar projects completed previously, the OBC may be expected to cost in the region of £150,000 to £200,000 and take between 8 and 12 months.

5 Future Stages of Work

This section outlines the further stages of work which will be required to progress the Wirral Mass Transit scheme forward to delivery, following the initial OBC work required to deliver Phase 1. Indicative sequencing, tasks and timescales for the further stages of work are shown within the delivery programme in Section 2 and Appendix A.

5.1 Phase 1 Outline Business Case

Sections 3 and 4 of this document have been concerned with summarising the technical detail involved in generating the evidence for and producing the Outline Business Case for Phase 1 of the Mass Transit network. Before discussing the stages of work that will follow the submission of this OBC in the following sub-sections, we first present a summary of the approximate level of cost and time expected to be required to complete the Accelerated Studies and OBC as described in Section 4 and other previous sections.

Table 5.1: Summary of Phase 1 OBC Costs

Workstage	Approximate Cost Range	Approximate Timescale
Funding and Finance Study	£30,000 - £40,000	12 weeks
Demand Study	£30,000 - £40,000	12 weeks
Options Appraisal Study	£15,000 - £25,000	12 weeks (but dependent on outcome of above)
Outline Business Case for Phase 1 (including all cases and ancillary documents)	£150,000 - £200,000	8 – 12 months (dependent on the outcomes of above and parallel Engineering Study)

5.2 Future stages for Phase 1

5.2.1 Funder engagement

While a range of private funding sources may be available to contribute to the scheme, it is likely that public funding will make up the majority of funding for the scheme. In order to prevent abortive work and expedite delivery, constructive engagement and “buy-in” to project processes should be gained early on from the potential funder, likely the Liverpool City Region Combined Authority, regarding the proposed methodology for selection, appraisal and delivery of the Wirral Mass Transit scheme to minimise the risk of rejection of the funding application in due course.

As a result, it is proposed that ongoing interface with CA should be considered essential during the completion of the works described in this Delivery Strategy. Gaining early approval on items such as appraisal methodology and timescales will provide confidence for all parties in the progression of scheme development and will allow any emerging shortfalls or complications to be swiftly and easily resolved. This task will therefore form a key component of Stages 1 and 2 of the Delivery Strategy and should be maintained throughout later stages.

5.2.2 Business Case Approvals

Following the stages of work outlined above in Sections 3 and 4, the next requirement would be to submit the Outline Business Case to the identified funding body for Phase 1 of the Wirral Mass Transit scheme, to allow them to make an informed decision on whether to award funding

to allow progression of the scheme with potential funding to cover the next stages of required work. If this is successful, detailed designs with costings will need to be developed. With appropriate approvals and planning permission gained, construction can begin. The delivery programme set out in Section 2 and Appendix A shows how the first phase of the Mass Transit scheme could be achieved and opened by August 2022, to support the opening of the Legacy Development stage of Wirral Waters, as long as the intermediate tasks are completed to time and without significant unforeseen difficulty.

5.2.3 Engineering Study

Alongside the business case work, a parallel engineering feasibility study will need to take place for Phase 1 and potentially later phases, to ascertain whether the preferred mode and routing option identified through the Options Appraisal process is deliverable in terms of operational requirements, and to establish a more robust cost estimate for the scheme. Depending on what the preferred option entails, the engineering feasibility study may need to cover elements such as land remediation requirements, diversion of any utilities, installation of rail and overhead power, and depot and stabling facilities. It could also include timetable modelling and operations.

The engineering study could be undertaken in parallel to the OBC for Phase 1, although there is a risk of abortive work. As well as determining the deliverability and constructability of the preferred option, the engineering study will also provide more detailed cost estimation for the scheme which will feed into the parallel business case process and allow the Economic and Financial cases to be updated. This is likely to drive an earlier, rather than later start for this Study as is shown in the programme in Section 2 and Appendix A.

5.2.4 What does this mean for the Delivery Strategy?

To complete Phase 1 of the Mass Transit network to the point of opening, a number of additional stages of work will be required to follow the submission of the Outline Business Case. These relate to the progression of the scheme through the business case process to allow an eventual successful funding decision, and the completion of detailed design work and construction once this has completed. Within this process there will be a need to convert the OBC described in this document to a Full Business Case (FBC) which can likely be undertaken in parallel with detailed design.

Prior to these tasks, however, a detailed Engineering Study will be required to investigate the ultimate preferred option (emerging from the Options Appraisal Study) and to provide guidance on the level of intervention, timescales, construction requirements and ultimately costs for the network. This will be required to feed into the OBC components as they are being compiled (particularly the Economic and Financial Cases) and will therefore be required to be commissioned to allow a start date within November 2020.

5.3 Future stages for Phase 2 and beyond

The accelerated workstreams described in Section 3 above will have been drafted so as to refer to the complete envisaged Mass Transit Network i.e. Phases 1, 2 and further future phases . These, along with the Strategic and Management Cases of the Outline Business Case for Phase 1 will comprise the basis of the Outline Business Case for Phase 2 onwards of the Mass Transit scheme. The Economic, Financial and Commercial cases from the first Outline Business Case will need to be fleshed out and expanded for the later stages of the scheme, along with

any updates to the Strategic and Management Cases. The Outline Business Case would then need to be developed into a Full Business Case to cover the whole scheme.

Once the Full Business Case is completed, it will need to be submitted to the potential funding body for their decision on whether to award full funding for the later phases of the scheme. Assuming a successful outcome, detailed design and costings work, can commence. Planning permissions and appropriate approvals would then be required to allow construction to start in earnest.

For both Phase 1 and the whole scheme, a longer-term monitoring and evaluation process would be required to demonstrate that the benefits identified in the Outline / Full Business Cases are realised. The plan for the monitoring and evaluation exercise should be included as one of the key deliverables as part of the Management Case.

5.3.1 What does this mean for the Delivery Strategy

Following on immediately from the completion of the required Business Case work for Phase 1, there will be a need for an Outline and ultimately Full Business Case for Phase 2 and beyond. It is envisaged that these would commence drafting immediately following the submission of the Phase 1 OBC and would take as inputs the Accelerated Studies of Stage 1 and the Strategic and Management Cases from Stage 2. The successful of completion of these Business Cases will ultimately unlock funding for the detailed design and construction of the wider network.

In parallel to this, there will be a need to undergo rigorous monitoring and evaluation for Phase 1 of the network which will hopefully be in the delivery phase as the business case and detailed design work for Phase 2 is being undertaken. This is expected to be undertaken over a number of years and will lead to significant lessons learnt for application within the delivery of later phases of the project.

A. Detailed Programme Stages

Figure A.1: Wirral Mass Transit Delivery Programme (Stage 1)

Tasks	14/09/2020	21/09/2020	28/09/2020	05/10/2020	12/10/2020	19/10/2020	26/10/2020	02/11/2020	09/11/2020	16/11/2020	23/11/2020	30/11/2020	07/12/2020	14/12/2020	21/12/2020	28/12/2020
Options Appraisal (Whole Scheme)															CHRISTMAS AND NEW YEAR 2020	
Do Something options identification																
Detailed consideration of demand forecasts																
Qualitative assessment of range of route alignments and frequencies																
Mode appraisal and selection																
Phasing considerations																
Refinement of shortlist to focus on Phase 1																
High level modal costings for shortlisted options																
Demand Study (Whole scheme)																
Planning data estimates																
Definition of interdependent schemes																
Timetable planning and service specification																
Demand model build and analysis																
Economic appraisal																
Environmental, social and wider economic impacts																
Demand Modelling and Economic Appraisal Report																
Funding and Finance Study (Whole Scheme)																
Project funding sources identification																
Project financing options analysis																
Advice on commercial models for integrated project delivery																
Commercial structure																
Development of project cash flow model																

Figure A.2: Wirral Mass Transit Delivery Programme (Stage 2 – Part 1 of 2)

Tasks	14/09/2020	21/09/2020	28/09/2020	05/10/2020	12/10/2020	19/10/2020	26/10/2020	02/11/2020	09/11/2020	16/11/2020	23/11/2020	30/11/2020	07/12/2020	14/12/2020	21/12/2020	28/12/2020	04/01/2021	11/01/2021	18/01/2021	25/01/2021	01/02/2021	08/02/2021	15/02/2021	22/02/2021	01/03/2021	08/03/2021	15/03/2021	22/03/2021	29/03/2021	05/04/2021	12/04/2021	19/04/2021	26/04/2021	03/05/2021	10/05/2021	17/05/2021	24/05/2021	31/05/2021	07/06/2021	14/06/2021	21/06/2021	28/06/2021	05/07/2021	12/07/2021	19/07/2021	26/07/2021	02/08/2021	09/08/2021	16/08/2021	23/08/2021
Business Case - Strategic and Management Cases (Whole scheme)															CHRISTMAS AND NEW YEAR 2020																																						
Options Appraisal Report																																																		
Strategic Case																																																		
Management Case																																																		
Engineering Feasibility Study (Whole scheme)																																																		
Business Case - Economic, Financial and Commercial Cases (Phase 1)																																																		
Economic Case																																																		
Appraisal Specification Report																																																		
Cost estimation																																																		
Financial Case																																																		
Commercial Case																																																		
Monitoring and Evaluation Plan																																																		
Benefits Realisation Plan																																																		
Stakeholder Consultation Plan																																																		
Public Consultation Exercise																																																		
Collation of Outline Business Case																																																		
Funding Body Decision (Phase 1)																																																		
Detailed Design (Phase 1)																																																		
Design work																																																		
Cost estimation																																																		
Approvals																																																		
Planning permission application																																																		
Construction (Phase 1)																																																		
Land remediation and clearance																																																		
Traffic management																																																		
Acquisition of materials																																																		
Direct construction work																																																		
Acquisition of vehicles																																																		
Opening																																																		

Figure A.3: Wirral Mass Transit Delivery Programme (Stage 2 – Part 2 of 2)

Tasks	30/08/2021	06/09/2021	13/09/2021	20/09/2021	27/09/2021	04/10/2021	11/10/2021	18/10/2021	25/10/2021	01/11/2021	08/11/2021	15/11/2021	22/11/2021	29/11/2021	06/12/2021	13/12/2021	20/12/2021	27/12/2021	03/01/2022	10/01/2022	17/01/2022	24/01/2022	31/01/2022	07/02/2022	14/02/2022	21/02/2022	28/02/2022	07/03/2022	14/03/2022	21/03/2022	28/03/2022	04/04/2022	11/04/2022	18/04/2022	25/04/2022	02/05/2022	09/05/2022	16/05/2022	23/05/2022	30/05/2022	06/06/2022	13/06/2022	20/06/2022	27/06/2022	04/07/2022	11/07/2022	18/07/2022	25/07/2022	01/08/2022	08/08/2022	15/08/2022	22/08/2022
Business Case - Strategic and Management Cases (Whole scheme)																	CHRISTMAS AND NEW YEAR 2020																																								LEGACY PHASE 1 OPENS
Options Appraisal Report																																																				
Strategic Case																																																			
Management Case																																																			
Engineering Feasibility Study (Whole scheme)																																																		
Business Case - Economic, Financial and Commercial Cases (Phase 1)																																																		
Economic Case																																																			
Appraisal Specification Report																																																			
Cost estimation																																																			
Financial Case																																																			
Commercial Case																																																			
Monitoring and Evaluation Plan																																																			
Benefits Realisation Plan																																																			
Stakeholder Consultation Plan																																																			
Public Consultation Exercise																																																			
Collation of Outline Business Case																																																			
Funding Body Decision (Phase 1)																																																			
Detailed Design (Phase 1)																																																			
Design work																																																			
Cost estimation																																																			
Approvals																																																			
Planning permission application																																																			
Construction (Phase 1)																																																			
Land remediation and clearance																																																			
Traffic management																																																			
Acquisition of materials																																																			
Direct construction work																																																			
Acquisition of vehicles																																																			
Opening																																																			

Figure A.4: Wirral Mass Transit Delivery Programme (Stage 3 – Part 1 of 3)

Tasks	29/08/2022	05/09/2022	12/09/2022	19/09/2022	26/09/2022	03/10/2022	10/10/2022	17/10/2022	24/10/2022	31/10/2022	07/11/2022	14/11/2022	21/11/2022	28/11/2022	05/12/2022	12/12/2022	19/12/2022	26/12/2022	02/01/2023	09/01/2023	16/01/2023	23/01/2023	30/01/2023	06/02/2023	13/02/2023	20/02/2023	27/02/2023	06/03/2023	13/03/2023	20/03/2023	27/03/2023	03/04/2023	10/04/2023	17/04/2023	24/04/2023	01/05/2023	08/05/2023	15/05/2023	22/05/2023	29/05/2023	05/06/2023	12/06/2023	19/06/2023	26/06/2023	03/07/2023	10/07/2023	17/07/2023	24/07/2023	31/07/2023	07/08/2023	14/08/2023	21/08/2023	28/08/2023	04/09/2023	11/09/2023	18/09/2023
Monitoring and Evaluation (Phase 1)																																																										
Monitoring of demand																																																											
Monitoring of traffic levels and air quality																																																											
Options Appraisal Report (Update)																																																										
Update in light of Phase 1 Detailed Design																																																										
Outline Business Case (Phase 2+)																																																										
Economic Case																																																											
Appraisal Specification Report																																																											
Cost Estimation																																																											
Financial Case																																																											
Commercial Case																																																											
Monitoring and Evaluation Plan																																																											
Benefits Realisation Plan																																																											
Stakeholder Consultation Plan																																																											
Public Consultation Exercise																																																											
Collation of Outline Business Case																																																											
Detailed Design (Phase 2+)																																																										
Design work																																																														
Cost estimation																																																												
Approvals																																																											
Planning permission application																																																											
Full Business Case (Phase 2+)																																																										
Update Outline BC to Full BC																																																											
Construction (Phase 2+)																																																										
Land remediation and clearance																																																											
Traffic management																																																											
Acquisition of materials																																																											
Direct construction work																																																											
Acquisition of vehicles																																																											
Opening																																																											
Monitoring and Evaluation (Phase 2+)																																																										
Monitoring of demand																																																											
Monitoring of traffic levels and air quality																																																											

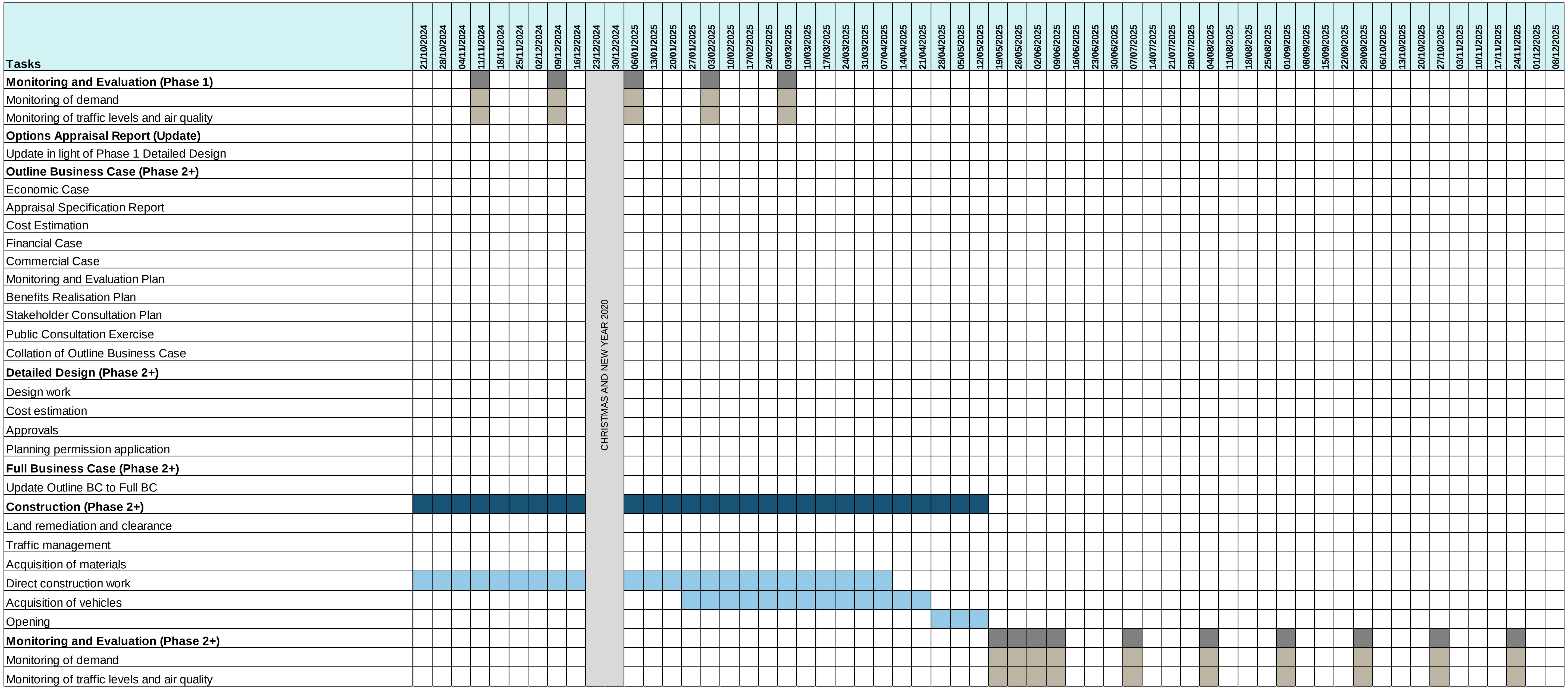
CHRISTMAS AND NEW YEAR 2020

Figure A.5: Wirral Mass Transit Delivery Programme (Stage 3 – Part 2 of 3)

Tasks	25/09/2023	02/10/2023	09/10/2023	16/10/2023	23/10/2023	30/10/2023	06/11/2023	13/11/2023	20/11/2023	27/11/2023	04/12/2023	11/12/2023	18/12/2023	25/12/2023	01/01/2024	08/01/2024	15/01/2024	22/01/2024	29/01/2024	05/02/2024	12/02/2024	19/02/2024	26/02/2024	04/03/2024	11/03/2024	18/03/2024	25/03/2024	01/04/2024	08/04/2024	15/04/2024	22/04/2024	29/04/2024	06/05/2024	13/05/2024	20/05/2024	27/05/2024	03/06/2024	10/06/2024	17/06/2024	24/06/2024	01/07/2024	08/07/2024	15/07/2024	22/07/2024	29/07/2024	05/08/2024	12/08/2024	19/08/2024	26/08/2024	02/09/2024	09/09/2024	16/09/2024	23/09/2024	30/09/2024	07/10/2024	14/10/2024
Monitoring and Evaluation (Phase 1)																																																								
Monitoring of demand																																																								
Monitoring of traffic levels and air quality																																																								
Options Appraisal Report (Update)																																																								
Update in light of Phase 1 Detailed Design																																																							
Outline Business Case (Phase 2+)																																																							
Economic Case																																																							
Appraisal Specification Report																																																							
Cost Estimation																																																							
Financial Case																																																							
Commercial Case																																																							
Monitoring and Evaluation Plan																																																							
Benefits Realisation Plan																																																							
Stakeholder Consultation Plan																																																							
Public Consultation Exercise																																																							
Collation of Outline Business Case																																																							
Detailed Design (Phase 2+)																																																							
Design work																																																							
Cost estimation																																																							
Approvals																																																							
Planning permission application																																																							
Full Business Case (Phase 2+)																																																							
Update Outline BC to Full BC																																																							
Construction (Phase 2+)																																																						
Land remediation and clearance																																																							
Traffic management																																																							
Acquisition of materials																																																							
Direct construction work																																																							
Acquisition of vehicles																																																							
Opening																																																							
Monitoring and Evaluation (Phase 2+)																																																						
Monitoring of demand																																																							
Monitoring of traffic levels and air quality																																																							

CHRISTMAS AND NEW YEAR 2020

Figure A.6: Wirral Mass Transit Delivery Programme (Stage 3 – Part 3 of 3)



mottmac.com