

## Project Lifecycle – Full Business Case Template

**Project Name: West Midlands Regional Transport Coordination Centre (RTCC)**

### Revision History (to be completed by the Applicant)

Please keep record of the document's Revision History using the table below:

	Version Number	File Name	Date submitted	Summary of changes made compared to previous version (please refer to previously received feedback and how issues have been addressed)
<b>Current Version</b>				
Version 4	V4	RTCC FBC V4.docx	13/5/19	Additions to V3 to reflect comments from DfT and revised programme
<b>Previous Versions</b>				
Version 1	V1	RTCC FBC V1.docx	24/7/18	First draft of RTCC Full Business Case for review by the Steering Group
Version 2	V2	RTCC FBC V2.docx	24/3/19	Second draft of RTCC Full Business Case incorporating revised costs and text updates based on Stakeholder engagement and review by the Steering Group
Version 3	V3	RTCC FBC V3.docx	11/4/19	Third draft of RTCC Full Business Case incorporating further refinement of costs

### Review History (to be completed by the Reviewer/Approver)

Name of Reviewer	Role	Date Business Case Reviewed	Summary of decision – whether approved or not – if not approved please explain the reason for non-approval and the additional evidence that would be needed for approval
RTCC Steering Group	Review and approval of all deliverables leading to the RTCC FBC	August 2018	Approved in principle subject to detailed design costs being confirmed

## Applicant Details

Applicant Details			
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<b>Ward (base location of lead organisation):</b>	16 Summer Lane, Birmingham, B19 3SD		
<b>Other organisations involved in project bid:</b>	<ul style="list-style-type: none"> <li>• Birmingham City Council</li> <li>• Coventry City Council</li> <li>• Dudley Metropolitan Borough Council</li> <li>• Sandwell Metropolitan Borough Council</li> <li>• Solihull Metropolitan Borough Council</li> <li>• Walsall Metropolitan Borough Council</li> <li>• Wolverhampton City Council</li> <li>• Highways England</li> <li>• West Midlands Police</li> </ul>		

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## **Purpose of the FBC**

The key purpose of the FBC is to:

- Revisit the OBC and new assumptions (e.g. resulting from the procurement);
- Confirm that the recommended solution continues to optimise value for money; and,
- Establish that the management arrangements for successful delivery are in place.

The aim of the Full Business Case (FBC) Stage is to provide a mechanism for appraising projects against a comprehensive set of criteria for each of the Five Business Cases. The FBC Stage will revisit the assumptions and main findings from the OBC which may have changed for example due to procurement arrangements, but will also bring forward new evidence on issues such as procurement and management strategy.

## Section A: Status of Business Case Development

### Section A1: Status & Progress to-date

#### 1. Present status of the Project. i.e. is the project at a fledgling/early stage, or is the project part-way through and needs additional funding or is it more developed than that?

The West Midlands Regional Transport Coordination Centre (RTCC) will be a multi-agency, multi-modal facility providing regional coordination of transport networks and services to help local authorities, emergency services and transport operators provide more reliable, resilient and integrated transport services to travellers. The RTCC will:

- coordinate the provision of consistent multi-modal information and travel advice and publish it across multiple channels to citizens and those travelling throughout the region to encourage more sustainable journeys making use of capacity across the network where it exists and spread the load;
- use data from its partners and from new sources to create a single unified view of the status of the region's transport networks including traffic across the region's roads. This "one version of the truth" or common operating view will underpin partners' network and service management activities through greater intelligence;
- enhance local authority network management and public transport management capabilities by providing regional coordination of responses to transport disruptions which span authority boundaries, which impact multiple agencies or which affect different transport operators and services;
- increase the operational resilience of network management across the West Midlands by providing the capability for weekday out-of-hours and weekend cover for local authority UTC centres were required;
- provide real-time operational links with public transport control rooms across the region;
- work with core partners to identify where roadworks will impact any part of the transport network and supporting the development and delivery of mitigation strategies (physical measures and campaign plans) in partnership with project sponsors, traffic managers and public transport operators to help minimise impacts on transport users;
- similarly, work with relevant agencies and contractors to understand where major construction works such as those associated with the delivery of HS2 will impact transport networks across the region and to develop plans to mitigate these impacts;
- support the management of incidents from identification and response through to the return to business-as-usual operations; and
- provide the capability to manage transport aspects of major events such as the City of Culture in 2021 and the 2022 Commonwealth Games.

The RTCC will be central to ensuring that legacy benefits from investments in the coordination of transport during major events are embedded into business-as-usual operations. The RTCC will also provide a platform for the West Midlands to lead a new generation of technological innovation in areas such as connected and autonomous vehicles, electric vehicles and new mobility solutions which need to be managed regionally.

In October 2016, TfWM published a Strategic Outline Business Case which was used to secure £250,000 from the Department for Transport to fund the development of the Full Business Case for the RTCC.

This document is the resulting Full Business Case which has been prepared using HM Treasury's Green Book Five Case Model and using the Department for Transport's WebTag guidance. It sets out

the strategic, economic, financial, commercial and management cases for the RTCC and is intended to secure funding to support detailed design, procurement and implementation.

## **2. Progress achieved prior to Bid. What has been achieved so far within the project?**

Prior to this bid, a number of significant milestones have been achieved as follows:

### ***Strategic Outline Business Case***

The Strategic Outline Business Case for the RTCC published in October 2016 followed DfT guidance on Transport Business Cases and identified five options for the RTCC:

- Do-nothing option;
- A temporary, low cost command centre;
- A permanent command centre that, after 2023, would continue to serve as the co-ordination centre for the West Midlands;
- A physical centre, with dedicated office space and staff; and
- A “virtual” centre, linking, integrating and enhancing the activities of different agencies through high speed communications.

The Strategic Outline Business Case was submitted to the Department for Transport and was successful in securing £250,000 to fund the preparation of a Full Business Case for the RTCC.

### ***Full Business Case***

TfWM began work on the Full Business Case in January 2018. The work consisted of five stages:

- Stage 1 - A review of the Strategic Outline Business Case and other evidence to confirm the Strategic Case for the RTCC;
- Stage 2 - Definition of the transport objectives that would help mitigate the issues identified in the Strategic Outline Business Case and revisit the four options identified to form a longlist of seven options for the RTCC;
- Stage 3 - Analysis of each of the seven long list options and identification of a short list of three options for detailed consideration (see Section D1 and Appendix I10 for more details);
- Stage 4 - An assessment of the affordability, value for money and deliverability of three short-listed options leading to a selection of the preferred option for the RTCC; and
- Stage 5 - Consolidation of the output from stages 1 to 4 into the Full Business Case.

The outcome from each of these stages was documented in separate deliverables, summaries of which are included as Appendices I9 to I12 of this Full Business Case.

### ***RTCC Steering Group***

In January 2018, the following partners established a formal Steering Group to help guide and shape the development of the RTCC:

- Local authorities from across the region - Birmingham City Council, Solihull Metropolitan Borough Council, Wolverhampton City Council, Dudley Metropolitan Borough Council, Walsall Metropolitan Borough Council, Sandwell Metropolitan Borough Council, Coventry City Council;
- Highways England; and
- West Midlands Police.

The Steering Group has provided robust governance and challenge throughout the development of the RTCC FBC. It has reviewed and approved the Full Business Case along with the separate deliverables on which the FBC is based (see Appendices I9 to I12).

In recognition of the RTCC's coordination role across multiple travel modes, in March 2019, the Steering Group was expanded to include:

- Network Rail; and
- National Express.

## Section B: Project Description and Background

### Background

The West Midlands economy has seen sustained growth in recent years, increasing faster than the national economy and confirming the region as a national leader in attracting inward investment. With continued economic success has come a rapid growth in travel demand across all modes.

#### The increasing demand for travel

The West Midlands Key Route Network (KRN) represents approximately 7% of the non-trunk road network in the West Midlands and carries approximately 50% of all car, public transport and freight journeys<sup>1</sup>. Surveys showed that congestion and information on delays rated low in terms of customers' satisfaction. In order to cope with demand, the West Midlands Bus Alliance is planning to increase bus patronage by 5%, improve peak time journey speeds and is aiming for customer satisfaction levels at over 85% by 2020. Demand for rail travel across the region is also continuing to increase. The area has seen more than a 70% increase in rail travel over the last 10 years with West Midlands Trains needing to provide at least an extra 30% more peak train capacity for Birmingham services by 2022<sup>2</sup>.

2016 saw record levels of traffic using the region's roads. Research published by the Birmingham Chambers of Commerce in 2017<sup>3</sup> identified that:

- The West Midlands is the fifth most congested metropolitan area in the UK and Birmingham is third most congested city in England (behind London and Manchester);
- Traffic speeds in the West Midlands are 15% slower than the UK average; and
- Motorists in Birmingham spent 9% of their total journey time in traffic, costing the city £407 million in lost revenue and on average, £990 per annum to each driver.

#### The impact of continuing growth on transport

In its Strategic Economic Plan 2016-2030<sup>4</sup>, the West Midlands Combined Authority (WMCA) sets out an ambitious programme to continue to transform the economic and social fortunes of the region over the next 15 years. This includes rapid growth in population, jobs and housing, resulting in improved earnings, social and physical well-being and economic performance of the region. There is extensive investment taking place in the region's transport infrastructure to support this growth including the construction of HS2. Whilst welcome and necessary, the short- to medium-term impact of this construction on travel across the region will be significant.

#### The transport challenge of major events

The West Midlands is also playing host to major events which will be accompanied by significant movements of visitors attracted to the region. These include the 2021 City of Culture in Coventry and the Commonwealth Games in Birmingham in 2022 with events and venues spread around the region. Throughout these events, the region will be on a global stage and the performance of its transport systems will be critical to delivering these events in an effective manner and enhancing the region's reputation and ability to attract inward investment.

#### Addressing transport challenges through mutual support and coordination

Given the additional stress that increasing demand due to growth along with roadworks, construction works, incidents and major events will place on already congested regional transport networks, a new

<sup>1</sup> West Midlands Key Route Network Evidence Report 2018, Version 2, March 2018, Transport for West Midlands

<sup>2</sup> Movement for Growth: 2026 Delivery Plan for Transport, WMCA.

<sup>3</sup> Congestion in Greater Birmingham: What Does It Mean for Businesses? Birmingham Chamber of Commerce.

[https://www.greaterbirminghamchambers.com/media/426828/congestion-research\\_webready.pdf](https://www.greaterbirminghamchambers.com/media/426828/congestion-research_webready.pdf)

<sup>4</sup> <https://www.wmca.org.uk/media/1382/full-sep-document.pdf>

multi-agency approach to regional transport coordination and mutual support is necessary to manage and proactively mitigate these impacts and to provide a greater degree of resilience.

### **Project description**

The West Midlands Regional Transport Coordination Centre (RTCC) will be a multi-agency, multi-modal facility providing regional coordination of transport networks and services to help local authorities, emergency services and transport operators provide more reliable, resilient and integrated transport services to travellers. This umbrella coordination capability will allow core partners to manage local transport networks as part of a regionally-integrated system which maximises the efficient movement of people and goods.

There are four local authority Urban Traffic Control (UTC) Centres which manage local authority roads across the region. Highways England has responsibility to manage the Strategic Route Network (SRN) from its Regional Control Centre (RCC) at Quinton. There are also a number of public transport control centres managing rail and bus services across the region. The introduction of the RTCC will not change any of these partners' existing transport or network management responsibilities or obligations. Instead, it will provide an umbrella coordination role which will help each partner manage its transport networks and services as part of a regionally-integrated system which maximises the efficient movement of people and goods.

The capabilities the RTCC will offer as part of its regional umbrella coordination role will include:

- **Travel information coordination** – using enhancements to the Network West Midlands digital platforms, the RTCC will be a hub to coordinate the provision of consistent and accurate multi-modal travel information and advice for travellers across the region including information to support Travel Demand Management initiatives for major events as well as planned and unplanned disruption to the transport network;
- **Operational planning** – providing additional planning resources to support local authorities and other partners to develop and test (via modelling) operational plans to address transport issues whose impacts cross authority boundaries, affect the wider region or the UK as a whole;
- **Common operating view** – using data from local authorities and other partners, from transport service providers and from third party data providers as well as data collected from targeted investments in enhanced roadside monitoring capabilities, the RTCC will maintain and share a common operating view of transport networks across the region. This will be made available to all local authorities and transport service providers as well as supporting clear and consistent travel information for the public, businesses and visitors through a real time single view of the network;
- **Operational monitoring** – the RTCC will support the monitoring of transport networks and provide partners with enhanced alerts to any potential deviations from normal operations or where disruption to one or more travel modes has consequences for transport across the region;
- **Operational coordination** – the RTCC will monitor the effects of implementing operational plans and where necessary, work with local authorities to ascertain whether further mitigating measures need to be developed and implemented to manage network conditions;
- **Network operations resilience** – the RTCC will provide the capability for 24/7 transport network coordination across the region by acting as an additional resource for UTC Centres outside their current normal operating hours where there is demand;
- **Reporting** – the RTCC will be able to provide a range of reports on regional transport network performance in real-time and trends over time including deviations from expected patterns;
- **Roadworks planning** – working with local authorities and other partners to determine the impact of planned roadworks across authority boundaries or the wider region and to agree ways in which these impacts can be mitigated;
- **Roadworks monitoring** – the RTCC will monitor the impacts that roadworks are having on the region's transport networks and where necessary, agree with local authorities whether further mitigating measures need to be implemented;

- **Incident response planning** – working with local authorities, the police and other emergency service personnel, the RTCC will enable the development of appropriate contingency plans to respond to incidents whose impact is across authority boundaries or affects the wider region and will foster a culture of mutual aid and support between partners;
- **Incident monitoring** - RTCC staff will monitor the status of transport networks and alert partners to any potential incidents thereby enabling early intervention to minimise impacts and providing a mechanism to advise travellers of any disruption as early as possible;
- **Incident response coordination** - the RTCC will monitor the effects of implementing agreed incident response plans on transport networks and where necessary, liaise with local authorities, the Police and emergency services as part of the Regional Resilience Forum along with Highways England where necessary to support further mitigating measures that need to be implemented;
- **Incident management** - in the event of a major incident, the RTCC will have the capability to be used as a tactical and strategic venue for TfWM and local authorities to coordinate the response from a transport network perspective;
- **Post-incident evaluation** – the RTCC will work with local authorities, the Police and emergency services to review measures taken in response to each incident and to improve future response plans where necessary;
- **Major events Transport Coordination Hub** – the RTCC will have the capability to be used as the Transport Coordination Hub for major events across the region and will support the colocation of different agencies including public transport operators and emergency services; and
- **Enable collaboration and testing of future mobility innovation programmes** coordinating across multiple partners and established consortiums to facilitate access to data and services and other tools and establishing a centre of excellence for the West Midlands to test future mobility initiatives.

The RTCC will be central to ensuring that legacy benefits from investments in the coordination of transport during major events are embedded into business-as-usual operations. The RTCC will also provide a platform for the West Midlands to lead a new generation of technological innovation in areas such as connected and autonomous vehicles, electric vehicles and new mobility solutions which need to be managed regionally.

## Strategic Case

### Section C: Strategic Case for Change and fit to WMCA Strategic Economic Plan Themes

#### Section C1: Overview and Rationale

##### Overview

The West Midlands Regional Transport Coordination Centre (RTCC) will be a multi-agency, multi-modal facility providing regional coordination of transport networks and services to support local authorities, emergency services and transport service providers across the region. This umbrella coordination capability will allow core partners to manage local transport networks and services as part of a regionally-integrated system which maximises the efficient movement of people and goods.

##### Rationale

With much of the region's road and public transport network currently operating at capacity during peak periods, the impact of increasing travel due to economic growth coupled with the short- to medium-term impact of construction works and the major events will be significant.

If these demands are not effectively managed, they will result in even more congestion, more unreliable journeys for workers and businesses and increased levels of harmful emissions, which are already frequently above safe target levels. It is estimated that transport and development construction work alone may reduce the existing network capacity by up to 25% in key locations during the period of the works.

During the 2021 City of Culture and the 2022 Commonwealth Games, the eyes of the nation will be on the region. There is a real risk that the reputation of the West Midlands as a place to live, work and do business will be damaged if these increasing transport demands are not managed.

Taking into account the region's political and operational environment and leveraging on experience of how similar challenges have been addressed in other parts of the world, the following are pre-requisites for establishing an integrated, region-wide response to managing and mitigating increased demands for travel:

- Day-to-day operation of the KRN is the responsibility of the individual local authorities. There are four local authority Urban Traffic Management (UTC) Control Centres across the region as well as a Regional Control Centre (RCC) operated by Highways England which manages the Strategic Route Network. There are also a number of public transport control centres across the region. However, operational coordination between these centres is ad-hoc and inconsistent. ***Effective regional coordination must be based on multi-agency, multi-modal cooperation and engagement, embedding a culture of mutual assistance and support into every aspect of day-to-day network operations;***
- The lack of consistent cooperation between centres makes operational planning and effective use of resources across the region more challenging. This includes responding to recurrent congestion and incidents as well as dealing with region-wide disruptions caused by poor weather. ***Improved cooperation and collaboration between core partners bringing the transport community together will support the development of effective operational plans and coordinated deployment of resources in response to cross-boundary or region-wide disruptions;***
- There is no single, real time common view of the state of the transport networks across the region. UTC Centres' operational perspective is on the highway network that they are responsible for. Similarly, public transport operators are focussed on managing their own services and networks. ***Establishing one version of the truth is critical for monitoring***

**regional network performance and for optimising responses to planned or unplanned events which cross authority boundaries, impact different modes or have wider region impacts. It is also fundamental to providing enhanced network intelligence through various data sources to operators supporting improvements to operational decision making;**

- Communication with the public is not managed consistently across the region which can result in partial or contradictory information being disseminated. This makes it difficult for the travelling public to plan journeys easily or make alternative arrangements on travel mode, routes or times in the event of delays or planned or unplanned disruptions to transport networks. **Travellers need to be provided with trusted, accurate, consistent and timely multi-modal information to plan all of their journeys, especially when there are disruptions to the transport network;**
- While Highways England's RCC operates 24/7, the UTC Centres do not. This creates an imbalance and a gap when disruption happens out of hours. **The capability for the KRN to be monitored and for incidents to be dealt around the clock must be established to provide effective network management across the region;**
- While local authority Permitting Schemes are improving the planning and scheduling of roadworks within each authority's area, mitigating their impact on the transport network across authority boundaries or across the wider region needs to be understood and mitigated. Similarly, the impacts of construction works such as HS2 on transport networks also needs to be understood and planned for. **Regional coordination of plans to mitigate the impact of roadworks and construction works is necessary to minimise their impact on travellers;**
- Effective coordination of transport services and operations is critical to the success of any major event. **Plans need to be put in place to establish a Transport Coordination Hub for the 2021 City of Culture, the 2022 Commonwealth Game and for future major events;** and
- There is limited cooperation between centres when incidents occur at or near authority boundaries. Additionally, the UTC Centres do not operate during weekday evenings or at weekends restricting effective cooperation in responding to incidents on any part of the transport network. **The capability to respond to incidents needs to be established and formalised across the region so that core partners work together to minimise impacts on the wider transport network.**

The RTCC is designed to address all of these pre-requisites and provide the umbrella coordination capability needed to allow core partners to manage local transport networks as part of a regionally-integrated system which maximises the efficient movement of people and goods.

### **RTCC objectives**

The objectives for the RTCC are as follows:

- Providing stakeholders with one version of the truth - a real-time, common view of the operation of transport networks and services across the region;
- Minimising the cumulative impact of infrastructure construction and maintenance on network operation;
- Supporting local authorities' management of the West Midlands Key Route Network (KRN) through regional liaison and coordination;
- Improving the management of transport networks during major events;
- Providing 24/7 proactive liaison, communication and monitoring between stakeholders to manage the impacts of unplanned events affecting the transport network;
- Maintaining and strengthening operational partnerships to support regional network coordination; and

- Support the economy of the West Midlands through greater coordination and management of the transport system connecting people to opportunities and businesses to their labour and trade markets and supply chains.

### **Use of public funds**

The RTCC is a wholly public-sector initiative aimed at embedding the principle of “local control, regional coordination” in all aspects of transport network management across the West Midlands. Once operational by TfWM and its core partners, the RTCC will have benefits for their own day-to-day operations but most importantly, for the wider movement of people and goods across the region by different modes.

The RTCC is therefore considered to be a suitable use of public funds. It also has a strongly positive benefit cost evaluation as set out in the Economic Case.

### **Benefits**

Twelve quantifiable and non-quantifiable benefits have been defined based on the proposed RTCC capabilities. These are as follows:

- B1 – Capability to coordinate communication to the traveling public including advice on how to avoid delays through alternative routes, methods and modes supporting a move to more sustainable journeys [quantifiable but already taken into account in assessing a number of the other quantifiable benefits]
- B2 – Provision of a regional coordination umbrella across core partners [quantifiable but already taken into account in assessing a number of the other quantifiable benefits];
- B3 – Capability to provide umbrella coordination of the region’s transport networks out of UTC Centre normal operating hours [quantifiable];
- B4 – Capability to coordinate the development of regional operational plans [non-quantifiable];
- B5 - Capability to coordinate interventions in day-to-day network operations (based on agreed operational plans) to improve regional network performance [quantifiable but already taken into account in assessing a number of the other quantifiable benefits];
- B6 – Capability to coordinate the development of contingency plans to mitigate the impact of unplanned events [quantifiable but already taken into account in assessing B7];
- B7 – Capability to coordinate the regional response to unplanned events (based on agreed contingency plans) [quantifiable];
- B8 – Capability to coordinate the development of plans to mitigate the impact of planned roadworks on regional transport networks [quantifiable];
- B9 – Capability to coordinate with Highways England on issues impacting the performance of the SRN and the KRN [non-quantifiable];
- B10 – Establishment and sharing of one version of the truth across the region [non-quantifiable];
- B11 – Capability to coordinate the development of plans to mitigate the impact of construction works (such as HS2) on regional transport networks [non-quantifiable]; and
- B12 – Capability to act as the transport coordination hub for major events [non-quantifiable].

Appendices I2 and I12 describe the benefits to be realised through the implementation of the RTCC and define the proposed measurement method for each, the timeline for accruing the benefits and whether each benefit is quantifiable or non-quantifiable. Appendix I8 provides a Benefits Realisation Plan and shows how the benefits have been profiled between December 2019 when the RTCC is expected to open and the end of the appraisal period in 2027/28.

As the RTCC will be an operational overlay on existing services, no significant cash releasing benefits (for example, the deployment of RTCC personnel on non-RTCC tasks when not supporting

24/7 operations thereby reducing the costs to TfWM of delivering the non-RTCC task) have been included in the appraisal as these have yet to be quantified pending agreement of operational practices within the RTCC.

### **Nature of the project**

The RTCC will impact “people”, “place” and “business” as follows:

- **People** – provision of a regional transport coordination umbrella will have a direct impact on the movement of people around the region. It will support coordination of different modes of travel and help provide travellers with accurate, consistent and timely information to plan the most appropriate mode, route and time of travel. Moreover, it will assist the travelling public by offering suggestions as to the best route, mode or timings based on the intelligence of the network at a given time. Better coordination of transport networks will also improve reliability of all forms of travel promote more consistent;
- **Place** – the immediate geographic sphere of influence of the RTCC will be the West Midlands region. Greater coordination of transport networks and services within the region will also have spill-over impacts on surrounding regions by increasing the attractiveness and effective operation of the region and citizen and business well-being; and
- **Business** – as with “people”, the provision of a regional transport coordination umbrella will have a direct impact on the movement of goods around the region. Businesses will be able to plan the movement of goods with more certainty and the impacts of any disruption will be better communicated allowing for re-timing of goods movements. This will also increase the attractiveness of the region for investment and new business development to drive jobs, economic well-being and growth.

## **Section C2: Strategic Economic Plan**

### **WMCA SEP priority programme areas addressed**

The RTCC’s primary impact will be on the following WMCA SEP priority programme areas:

- **HS2 Growth:** A programme to maximise the benefits of the largest infrastructure project in Europe for a decade to drive economic growth across the Midlands;
- **Exploiting the economic geography:** Making the most of the scale and diversity of the West Midlands geography to enable economic growth and community wellbeing; and
- **Environmental Technologies:** Action to secure environmental improvements and contribute to low carbon sustainability and by doing so enable the growth of the environmental technologies sector. Better coordination of transport networks will also improve reliability of bus services and encourage modal shift.

HS2 and the wider HS2 connectivity package is critical to the continuing growth of the regional economy. The construction programme is planned to last until 2026 meaning that some parts of HS2’s route in the region will be subject to a lengthy period of construction works with the consequential impact on regional transport. Once operational, the RTCC will have the capability to monitor construction works such as those associated with HS2 and coordinate plans to minimise their impact on transport modes.

The RTCC’s regional transport coordination capability will help facilitate people’s access to jobs and learning to increase employment and skills levels and businesses access to markets growing the number and profitability of West Midlands manufacturing and business services. It will also allow exploitation of the regional innovation base by leveraging on existing strengths of regional universities, research assets and business incubator networks. The RTCC’s regional transport coordination capability can develop links with universities and businesses to shorten the innovation

lifecycle and stimulate the marketplace in this area of multi-modal, region-wide real-time operations.

Through a Skills Academy set up as part of the RTCC, it will also form the basis of a Centre of Excellence, training the next generation of transport professionals and improving the operational skills available in the workforce.

The RTCC's role in helping to identify and take early steps to mitigate the onset of congestion will reduce the amount of additional time vehicles are stationary with their engines idling, thereby helping to control exhaust emissions. Through coordination of operational plans across the region and by acting as a hub for the provision of consistent and accurate travel information, the RTCC will also help sustainable travel choices become viable travel options.

Additionally, the RTCC will also have a secondary impact on the following WMCA SEP priority programme areas:

- **New Manufacturing Excellence:** action to build on the fact that the West Midlands is home to one of the biggest concentrations of high value manufacturing businesses in Europe, and ensure that our global companies are supplied by clusters of local businesses. Effective movement of goods across the region will help meet supply chain targets and enable access to new jobs for workers, especially where traditional centres of population and new business developments are some distance apart;
- **Digital and Creative:** a programme to ensure that the level of business start-ups, growth and survival matches the best in the country with a particular focus on the digital and creative sectors;
- **Housing:** action to accelerate the delivery of current housing plans and enable an increase in the level of house building to support the level of growth envisaged in the SEP. The RTCC will also support more efficient movement of people from housing development to access jobs, education, leisure and retail activities;
- **Skills for the Supply Chain and Employment for All:** a programme of activity to ensure that the skills of businesses are met and that everybody has the opportunity to benefit from economic growth; and
- **Medical and life sciences:** action to enable the growth of the health and care sectors in ways that improve the health and wellbeing of the area, reduces demand on public services and enables economic growth;

The RTCC will support these areas of the SEP by working with core partners to improve the management of transport networks thereby making the region a better place in which to live, work and visit. This will include;

- supporting core partners in reducing journey times and increasing journey time reliability;
- improving traveller experience and contributing to social wellbeing; and
- ensuring resilience at times of disruption and working with core partners to mitigate wider impacts and return operational of the network to "normal" as soon as possible..

#### **WMCA's growth objectives addressed**

<b>Economic Impact</b>
<p>Economic Growth - To improve GVA for the region in line with the UK average</p> <ul style="list-style-type: none"> <li>• Exploitation of the regional innovation base by leveraging on existing strengths of regional universities, research assets and business incubator networks. A new regional transport coordination capability can develop links with universities and businesses to shorten the innovation lifecycle and stimulate the marketplace in this area of multi-modal, region-wide real-time operation; and</li> </ul>

- The RTCC will also address known weaknesses in the operation and resilience of regional transport networks to make the West Midlands an attractive place to do business and enable citizens to access new employment and economic opportunities such as those provided by HS2 and new manufacturing capability.

Business Competitiveness - To improve the productivity (GVA) of our businesses focusing on our growth sectors including:

- Supply Chain/Freight where a regional transport coordination capability can assist this customer base with achieving their journey time and journey time reliability requirements;
- HS2 where a regional transport coordination capability can develop operational and customer service offerings and work to operationally integrate HS2 and its resulting growth opportunities into the transport choices; and
- Connected Vehicles where a regional transport coordination capability can integrate this new capability into the overall transport network, with a view to improving safety and using the data derived to further enhance innovation.

Accessibility - To improve the connectivity of people and business to jobs and markets

- Using the regional transport coordination capability to help facilitate people's access to jobs and learning, to increase employment and skills levels and businesses access to markets growing the number and profitability of West Midland's manufacturing and business services.

### Social Impact

Employment & Skills - To improve skills levels of all ages so that people have the skills and qualifications to access jobs – Ignite (children and young people) / Retune (employability) / Accelerate (Skills for the future labour market)

- By providing access to education and skills training in a reliable manner; and
- By growing and upskilling a new generation of operational and technical practitioners to provide the regional transport coordination capability.

### Environmental Impact

Sustainability - To improve competitiveness through energy and resource efficiency and stimulate new technology and business

- By dynamically smoothing traffic and providing an operational environment by which more sustainable travel choices become viable travel options;
- By improving the monitoring of the environment and providing early alerts when air quality starts to change thereby allowing mitigating measures to be implemented; and
- By reducing emissions through increased efficiency of the transport networks.

## Section C3: Public Service Reform

### Public Service Reform

The RTCC will impact Employment and Skills PSR key programme area. By having a regional transport coordination capability wholly different ways of achieving outcomes will be found by bringing people and processes together on a region-wide basis and using enhanced governance mechanisms and technology to improve overall efficiency and effectiveness of transport operations.

## Section C4: Stakeholder Involvement

### Stakeholder involvement

The core stakeholders have been working in partnership with TfWM to develop the RTCC. In January 2018, these partners established a formal Steering Group to help guide and shape the development of the RTCC. This Steering Group has reviewed and approved each stage of the Full Business Case along with the separate deliverables on which it is based (see Appendices I9 to I12).

In addition to the formal Steering Group meetings, there have been regular one-to-one sessions between TfWM and stakeholders to solicit opinion and feedback.

Starting in February 2019, a series of Stakeholder Workshops were convened to solicit detailed views of the RTCC's objectives, its value-add and its capabilities in 2019 (when it will go-live in its initial form) and 2021 (when it will be fully operational).

### Stakeholders

The core partners, operational partners and innovation partners are as follows:

#### Core Partners

The following organisations will need to be involved in the creation and operation of the RTCC and are members of the RTCC Steering Group:

- Transport for West Midlands - part of the WMCA responsible for coordinating investment in the region's transport infrastructure and creating a fully integrated, safe and secure transport network. TfWM is the lead agency for the RTCC;
- Local authorities with responsibility for traffic management within their council boundaries. The RTCC will support each council in carrying out its traffic management obligations especially where the impacts of transport network performance are cross-boundary or region-wide:
  - Birmingham City Council;
  - Coventry City Council;
  - Dudley Metropolitan Borough Council;
  - Sandwell Metropolitan Borough Council;
  - Solihull Metropolitan Borough Council;
  - Walsall Metropolitan Borough Council;
  - Wolverhampton City Council;
- Highways England with responsibility for managing the Strategic Road Network (SRN). Management of the SRN in the region is carried out from their Regional Control Centre at Quinton, Birmingham. The RTCC will interface directly with the RCC to support an integrated approach to regional transport management;
- West Midlands Police. The RTCC will support the police in providing a coordinated response to incidents on the region's transport network;
- National Express which operates between 80 to 90% of the bus routes across the Region and through the RTCC's one version of the truth, will be able to understand the real-time status of the highway network. Given the extent of its bus fleet, it will also be a valuable source of information for the RTCC. National Express will also use information from the RTCC to get early sight of how disruption to other modes may place additional demands on its bus services; and

- Network Rail which has responsibility for operating the rail infrastructure across the Region, managing timetabling and managing Birmingham New Street Station. It will be the key provider of information relating the status of the rail network and will use the RTCC's one version of the truth to get early sight of how disruption to other modes may impact rail services.

#### Operational Partners

The organisations listed below represent the wider operational partners who will interact with the RTCC as part of their operations. Not all will be involved at Day One but their level of interaction will increase over time and in response to specific events or issues.

- M6 Toll and Midlands Connect as major road network operating partners;
- Neighbouring local highway authorities including Warwickshire, Staffordshire and Worcestershire;
- Emergency services including Central Motorway Policing Group, Staffordshire Police, West Mercia Police, Warwickshire Police, British Transport Police and other emergency services, such as the Fire and Rescue Service and the Ambulance Service;
- Major traffic generators including Birmingham Airport, advanced manufacturing facilities, freight and logistics facilities and large shopping centres;
- Local bus operators (other than National Express);
- Train operating companies;
- High Speed 2;
- Midland Metro;
- Cycle Share;
- Taxi, operators and private hire operators;
- Coach operators;
- Travel media;
- Regional transport user groups; and
- The Local Resilience Forum.

#### Innovation Partners

The RTCC will address transport challenges as economic growth takes place and the region continues to develop. The following organisations will support the RTCC in developing its intellectual capital and help exploit future developments in technology and data processing:

- App and data service providers (for example, Citymapper, INRIX, Google and Waze);
- Government technology and innovation centres (for example, the Transport Systems Catapult, etc.);
- Universities across the region; and
- Advanced manufacturing industries across the region.

## **Section C5: Strategic Issues/Risks**

### **Strategic risks**

The main risks and the means to mitigate them are described in detail in Section G2 of this Full Business Case. The current Risks and Issues Register is included in Appendix I6.

In summary, the main risks and issues which may prevent successful delivery of the RTCC are:

- A **delay in approval of either capital or revenue costs** may impact how long it takes to make the RTCC operational. As described in Section C1, the benefits start accruing as soon as the RTCC is operational so any delay in opening will impact the realisation of the benefits and potentially impact those dependent activities which are on their own fixed timeline (for example, the 2022 Commonwealth Games);
- **Lack of cooperation with wider operational partners** which may not have a direct impact on the implementation of the RTCC but may impact its ability to realise the wider benefits identified in Section C1;
- **Delays to the RTCC implementation programme** which could impact its ability to deliver benefits relating to dependent activities on their own fixed timeline (for example, the 2022 Commonwealth Games);
- **Changes in the timetable of dependent activities** such as the HS2 construction programme or the 2022 Commonwealth Games will impact how and when the RTCC benefits can be realised;
- The implementation of the RTCC is currently aligned with activities being undertaken by **TfWM's Joint Data Team and the Office for Data Analytics**. These initiatives need to be kept in alignment as far as possible as any divergence may result in repeated work or gaps in approach which ultimately could impact the RTCC's abilities to deliver the expected benefits; and
- Ongoing issues relating to the 25 year PFI contract awarded to Amey in 2010 to deliver the **Birmingham City Council's Highways Maintenance and Management Service** could theoretically impact on interaction with the RTCC. Engagement with the Council which has been a feature of the development of the RTCC to date will continue throughout the establishment and operation of the RTCC to ensure that any issues can be identified and addressed.

### Strategic issues

The main issues and the means to address them are described in detail in Section G8 of this Full Business Case. The current Risks and Issues Register is included in Appendix I6.

In summary, the main issues relating to successful delivery of the RTCC are:

- Timescales for approval of funding for the RTCC given the need to mitigate the impacts of HS2 construction;
- Growing levels of congestion and journey time reliability on the West Midlands network and the effect on the WMCA's reputation;
- The agreed programme of works for HS2, other transport network developments and commercial/housing schemes result in an unsustainable reduction in network capacity;
- The need for true partnership cooperation between all key stakeholders to deliver the level and quality of scheme and project development required to meet the aspirations of politicians and others; and
- The commitments given to Commonwealth Games, HS2 and various developments across the West Midlands are currently undeliverable without the RTCC, KRN monitoring and management and other actions in the Congestion Management Plan (CMP) being successfully brought forward.

### Project dependencies

#### Joint Data Team

- **Dependency** – TfWM's Joint Data Team (JDT) will make use of the data that RTCC collects to support the planning and data reporting activities. The RTCC project includes enhancements to

the JDT data management facilities and capabilities. There is also a reverse dependency in that the RTCC will be dependent on data made available by the JDT;

- **Impact** – Any delays in the RTCC becoming operational will impact the work of the JDT. This may result in incompatible systems and data architectures and a loss of the benefits of integration. Similarly, any delays in or issues with the JDT providing data to the RTCC once it is operational could impact the extent to which the RTCC is able to deliver its capabilities; and
- **Mitigation** – The JDT will continue to be represented on the RTCC Steering Group to help align the work of the JDT with the development of the RTCC project.

#### Transport Coordination Hub for major events

- **Dependency** - The current intention is that the RTCC is used as the Transport Coordination Hub for major events in the region including the 2021 City of Culture in Coventry and the 2022 Commonwealth Games;
- **Impact** - If the opening of the RTCC is delayed or if its capabilities are scaled back from those set out in Section B, alternative means for regional transport coordination in respect of these (and other) major regional events will need to be found with the added time and cost this entails; and
- **Mitigation** - Once funding is approved for development and implementation of the RTCC, the governance structure set out in Section G will assume responsibility for aligning the implementation programme with the timetable for the major events and for alerting stakeholders to any deviations. Where necessary, re-focusing of the RTCC implementation programme may be necessary to ensure it can deliver on its proposed role as a Transport Coordination Hub for major events.

#### **Constraints**

The primary constraint relates to the resources needed to support the RTCC once operational:

- **Constraint** – resources needed to support the RTCC's operational capabilities will be provided by TfWM from either re-tasking existing personnel or through recruitment of additional personnel specifically for the role. These resources will need to be available and trained as soon as the RTCC becomes operational; and
- **Mitigation** – during business-as-usual operations, the RTCC will operate with a core team of a Duty Manager, three Highway Corridor Managers, a Social Media Lead and a representative of the bus community. During both planned and unplanned events, the RTCC will be able to provide a surge response through additional resources brought in from the WMCA and from core partners as necessary. The FBC makes allowance for recruitment of personnel using recruitment agencies where absolutely necessary to expedite the process. In the medium- to long-term, graduates from the Skills Academy will be a source of skilled personnel trained in the management and operation of the region's transport networks. An allowance has also been made for initial training of new personnel and for ongoing training.

### **Section C4: Alignment with a Broader Programme**

#### **Programme Alignment:**

To date, the planning and delivery of the broader framework programme has not suffered any setbacks that will affect this project.

## Economic Case

### Section D: Economic Case - Options Appraisal

#### Section D1: Short List of Options considered

#### 3. Please highlight any changes to the Preferred Option, Alternative Option and Reference Case option

##### Long list of options

Using these Business Case Objectives and the five options for the RTCC defined in the SOBC, an expanded long list of options was defined using a process adapted from the Green Book's Options Framework. The process for defining these long listed options is summarised in Appendix I10. Seven long list options were defined as follows:

- Long List Option 1 – Do nothing;
- Long List Option 2 – Operational liaison capability;
- Long List Option 3 – Operational liaison, coordination and support capability;
- Long List Option 4 – Operational liaison, coordination and support capability including coordination of transport aspects of major events;
- Long List Option 5 – Operational liaison, coordination and support capability including coordination of responses to incidents affecting regional transport networks;
- Long List Option 6 – Operational liaison, coordination and support capability including coordination of transport aspects of major events and coordination of responses to incidents affecting regional transport networks; and
- Long List Option 7 – Centralised management and control.

##### Short list of options

These seven long list options were reduced to a short list of three options for detailed consideration using the Green Book Critical Success Factors and the WebTag Early Assessment and Sifting Tool processes. The process for determining the three short listed options is summarised in Appendix I11. The three short-listed options were as follows:

##### Short List Option 1 – Do nothing

- **Description** – Continuation of the current situation with inconsistent cooperation between existing centres;
- **Cost** – Effectively zero additional cost compared with the current situation but with zero additional benefits therefore failing to meet increasing demands for travel as well as an inability to address region-wide disruption caused by roadworks, construction works, incidents and major events;
- **Key advantages** – No additional costs, no additional operational agreements needed; and
- **Key disadvantages** – No additional benefits, no additional impact on managing demand for travel, congestion, the impacts of roadworks, construction works, incidents of major events; no additional multi-modal integration.

##### Short List Option 3 – Operational liaison, coordination and support capability

- **Description** – Capability for core partners to work together to agree plans to address transport issues at Authority boundaries or which have a regional impact. Also includes the capability to help coordinate transport responses to incidents;

- **Cost** - Capital costs of £20.73M (actual value) and revenue costs of £9.72M (actual value) to design, implement and operate the RTCC up to 2028/29. Quantifiable benefits of £143.83M (actual value). Option 3 has a benefit : cost ratio of 4 :1 (Note that the present value of the total capital and revenue costs (£27.93M) and the present value of the benefits (£119.86M) were used to calculate the benefit : cost ratio – see Appendix I12);
- **Key advantages** – Capability to operate 24/7, maintenance of a common operating view and providing core partners with the capability to agree operational plans, mitigate the impact of roadworks and construction works, agree incident response plans and help coordinate their implementation; and
- **Key disadvantages** – Limited impact on coordinating the transport aspects of major events, limited coordination with public transport operators.

Short List Option 6 – Operational liaison, coordination and support capability including coordination of transport aspects of major events and coordination of responses to incidents affecting regional transport networks

- **Description** – As Option 3 but including the capability to pro-actively alert core partners to transport issues at authority boundaries or which have a regional impact, actively coordinate transport responses to incidents, greater cooperation with public transport operators, act as a transport coordination hub for major events;
- **Cost** – Capital costs of £21.53M (actual value) and revenue costs of £10.75M (actual value) to design, implement and operate the RTCC up to 2028/29. Quantifiable benefits of £283.17M (actual value). Option 6 has a benefit : cost ratio of 7 : 1 (Note that the present value of the total capital and revenue costs (£29.59M) and the present value of the benefits (£234.15M) were used to calculate the benefit : cost ratio – see Appendix I12);
- **Key advantages** – As Option 3 but including the capability to coordinate transport across the region in a fully integrated, multi-modal manner, capability to take a lead role in transport responses to incidents, acting as a transport coordination hub for major events; and
- **Key disadvantages** – No direct control of traffic management infrastructure (although not considered essential to delivering the concept of the RTCC).

The RTCC Steering Group approved the short list of options on 23rd May 2018.

### Preferred option

The three short listed options were assessed in detail using a formal cost-benefit assessment for the quantifiable benefits and a targeted, non-monetarised assessment of the non-quantifiable benefits. As a result of these assessments, **Short List Option 6 was selected as the preferred option for the RTCC.**

Optimism bias was applied as part of the appraisal of the options using HMT Green Book guidance<sup>5</sup>. Optimism bias was applied to each cost item separately to ensure this reflected the nature of uncertainty as realistically as possible. Overall, the optimism bias for capital costs was 41% and for revenue costs, was 25%. The same optimism bias was applied to both options under consideration. Given the commonalities between the options, the application of optimism bias had limited impact on relative weightings of each option. Both were considered to be within the affordability envelope of costs increased up to the ceiling defined by the application of optimism bias.

The process for determining the preferred option is summarised in Appendix I12. The RTCC Steering Group approved the preferred option and the FBC on 2nd August 2018.

### Alternative option

Short List Option 3 – Operational liaison, coordination and support – is the alternative option for the RTCC.

<sup>5</sup> HMT Green Book Guidance On Public Sector Business Cases Using The Five Case Model 2013, Chapter 6, P61

## Reference case

All of the options under consideration involved different levels of coordination of regional transport networks by TfWM and its core partners. As such, all of the shortlisted options were effectively variants of a Public Sector Comparator project. A specific PSC option was therefore not included in the appraisals of the short list of options.

## Section D2: Demand and Project Need

### Evidence of demand

The West Midlands KRN represents approximately 7% of the non-trunk road network in the West Midlands and carries approximately 50% of all car, public transport and freight journeys<sup>6</sup>. Surveys showed that congestion and information on delays rated low in terms of customers' satisfaction. In order to cope with demand, the West Midland Bus Alliance is planning to increase bus patronage by 5%, improve peak time journey speeds and is aiming for customer satisfaction levels at over 85% by 2020. Demand for rail travel across the region is also continuing to increase. The area has seen more than a 70% increase in rail travel over the last 10 years with West Midlands Trains needing to provide at least an extra 30% more peak train capacity for Birmingham services by 2022<sup>7</sup>.

The Birmingham Chambers of Commerce Research Report<sup>8</sup> summarised the current performance of transport networks across the West Midlands as:

- Having the fifth most congested metropolitan area in the UK and Birmingham is third most congested city in England (behind London and Manchester);
- Traffic speeds in the West Midlands 15% are slower than the UK average;
- Motorists in Birmingham spent 9% of their total journey time in traffic, costing the city £407 million in lost revenue and on average, £990 to each driver; and
- With population levels in the West Midlands expected to increase by half a million over the next 30 years, it is predicted that levels of traffic will increase by 46% by 2040<sup>9</sup>, adding to the existing air quality issues, creating more carbon emissions and also increased ambient noise levels, unless mitigating actions are put in place.

The Report also highlighted the following consequential impacts of this situation on businesses in the region:

- Two thirds of businesses cite congestion as a problem for their business;
- When selecting a potential location for a new business, the current transport network operation will be a key factor;
- Staff punctuality, reduction in productivity and subsequent loss of revenue are the main problems local businesses face as a result of congestion; and
- Air quality/ environment – each borough other than Solihull has a borough-wide Air Quality Management Area with NO<sub>2</sub> levels well in excess of the target level. PM<sub>10</sub> targets are also exceeded in three boroughs.

There is also significant major infrastructure work planned to be constructed concurrently that will cause further transport disruption. There is predicted to be up to 25% loss of capacity on the motorway

<sup>6</sup> West Midlands Key Route Network Evidence Report 2018, Version 2, March 2018, Transport for West Midlands

<sup>7</sup> Movement for Growth: 2026 Delivery Plan for Transport, WMCA,

<sup>8</sup> Congestion in Greater Birmingham: What Does It Mean for Businesses? Birmingham Chamber of Commerce. [https://www.greaterbirminghamchambers.com/media/426828/congestion-research\\_webready.pdf](https://www.greaterbirminghamchambers.com/media/426828/congestion-research_webready.pdf)

<sup>9</sup> Movement for Growth: 2026 Delivery Plan for Transport <https://www.tfwm.org.uk/media/2539/2026-delivery-plan-for-transport.pdf>

network at any one time due to construction works<sup>10</sup> and significant impacts on the rest of the road networks.

The West Midlands is also playing host to major events which will be accompanied by significant movements of visitors attracted to the region. These include the 2021 City of Culture in Coventry and the Commonwealth Games in Birmingham in 2022 with events and venues spread around the region.

The increased demands on transport networks from economic growth alongside the impact of infrastructure construction and the major events will result in more congestion, more unreliable journeys for workers and businesses and increased levels of harmful emissions.

Given the additional stress this will place on already congested regional transport networks, a new multi-agency approach to regional transport coordination is necessary to manage and proactively mitigate these impacts.

### **What will the RTCC achieve**

The aims of the RTCC is described in Section A1 but in summary, are to:

- use data from its partners and from new sources to create a single unified view of the status of the region's transport networks. This "one version of the truth" or common operating view will underpin partners' network management activities;
- enhance local authority network management and public transport management capabilities by providing regional coordination of responses to transport disruptions which span authority boundaries, which impact multiple agencies or which affect different transport operators and services and by enhancing the resilience of transport network operations across the region;
- increase the operational resilience of network management across the West Midlands by providing the capability for weekday out-of-hours and weekend cover for local authority UTC Centres;
- provide real-time operational links with public transport control rooms across the region;
- coordinate the provision of consistent multi-modal information and travel advice, and communicate to citizens and those travelling throughout the region including providing support for TfWM's Travel Demand Management activities;
- work with core partners to identify where roadworks will impact any part of the transport network and support the development and delivery of mitigation strategies in partnership with project sponsors, traffic managers and public transport operators;
- similarly, work with relevant agencies and contractors to understand where major construction works such as those associated with the delivery of HS2 will impact transport networks across the region and to develop plans to mitigate these impacts;
- support the management of incidents from identification and response through to the return to business-as-usual operations; and
- provide the capability to manage transport aspects of major events such as the City of Culture in 2021 and the 2022 Commonwealth Games;

In addition to these aims, the RTCC will help the WMCA deliver the recommendations of the Kerslake Report and create the conditions for behaviour change programme to be successful.

The RTCC will be central to ensuring that legacy benefits from investments in the coordination of transport during major events are embedded into business-as-usual operations. The RTCC will also provide a platform for the West Midlands to lead a new generation of technological innovation in areas such as connected and autonomous vehicles, electric vehicles and new mobility solutions which need to be managed regionally.

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<sup>10</sup> WMCA Board Network Resilience – Preliminary Report, 17<sup>th</sup> February 2017

## Section D3: Additionality

### Counterfactual case

As noted in Section D1, all of the long- and short-listed options under consideration involved different levels of coordination of regional transport networks by TfWM and its core partners. As such, all of the shortlisted options were effectively variants of a Public Sector Comparator project. A specific PSC option was therefore not included in the appraisals of the short list of options.

In order to test the short-listed options against the status quo, Option 1 was a “Do Nothing” option. This was based on the following assumptions:

- No change in operational practices employed by any of the core partners;
- No change in current staffing levels at any of the core partners’ Control Centres; and
- No additional systems required at any of the core partners’ Control Centres specifically related to the RTCC.

This is described in Section D1.

### Catalytic effects

The table below outlines the key assumptions relating to catalytic effects of the introduction of the RTCC.

<b>Scheme and Catalytic Effects</b>	<b>Assumption used</b>	<b>Justification</b>
<b>Leakage (%)</b>	<b>0%</b>	<p>There are no leakage effects arising from the Reference Case equivalent (ie the Do Nothing Option) as this represents the current situation.</p> <p>Introduction of the RTCC is expected to impact travel across the region and beyond, and across all travellers, regardless of which mode they use for their trips. In the context of leakage, the benefits of the RTCC will not distinguish between specific groups of travellers.</p>
<b>Displacement (%)</b>	<b>0%</b>	<p>The Reference Case equivalent (ie the Do Nothing Option) does not deliver any additional benefits – any of the benefits will only be realised through the implementation of Option 6 or an alternative intervention.</p> <p>As above, the introduction of the RTCC is expected to impact travel across the region and beyond, and across all travellers, regardless of which mode they use for their trips. In the context of displacement, the benefits of the RTCC will not distinguish between specific groups of travellers within the region.</p>
<b>Substitution (%)</b>	<b>0%</b>	There are not expected to be any negative substitution effects resulting from the establishment of the RTCC
<b>Multiplier (e.g. 1.1)</b>	<b>1</b>	As noted in Section C of this FBC, the RTCC will have a positive impact on the economy of the region, improving the management and coordination of transport networks to drive business efficiency and making the region a more attractive place to invest. Based on Table 4.14 of the 2014

	<p>Additionality Guide<sup>11</sup>, a multiplier of between 1.5 and 1.7 should be used. However, it was considered to be inappropriate to uplift the overall benefits of the RTCC by these kinds of factors at this stage without recourse to a final operational design</p>
<p>Therefore the Net Additional Impact amounts to the benefits from Option 6. Without Option 6 (or an alternative intervention), none of the benefits would be realised.</p> <p><b>Comparing the outcomes of the “investment case” and the “counterfactual” case</b></p> <p>The benefits of the preferred option are described in detail in Section F4. The Do-Nothing option has no additional benefits as it is the current situation.</p>	

<sup>11</sup> <https://www.gov.uk/government/publications/additionality-guide>

## Commercial Case

### Section E: Commercial case – External Procurement (if appropriate)

#### 4. Please highlight any changes to the Commercial Case. Do they impact on any other aspects of deliverability?

##### Private development partners

There are no private development partners involved in this project.

##### Third party services required

The following third party services are expected to be required:

- Facility refurbishment and fit out;
- System provision, installation, testing and commissioning; and
- Communications network provision, installation, testing and commissioning.

##### Procurement requirements in terms of outputs

It has been assumed that all of the third party services listed above will be delivered through extensions to existing contracts (where permitted) or through new contracts let through the WMCA's existing framework contracts. Given the scope and value of these framework contracts, it is considered unlikely that open procurements through the OJEU will be necessary although this remains an option if required.

TfWM will lead on all procurement activities associated with the RTCC.

##### Personnel implications

At this stage, there are not expected to be any TUPE implications as all staff associated with delivering the RTCC capabilities will be from TfWM or core partners. It is not anticipated that any staff will transfer from one agency to another as part of this project.

##### Outline the Procurement Project Plan and Timescales

The critical path milestones for the design and implementation of the RTCC and expected date for commencement of operations is set out in Section G1. A gantt chart showing these critical path milestones is included in Appendix I5.

In summary, the critical path milestones relating to procurement and commencement of operations of Phase 1 of the RTCC are as follows:

Milestone	Expected programme
<b>Programme</b>	
Final Business Case	January 2019 - May 2019
RTCC2020 Delivery Programme	July 2019 - August 2019
RTCC2019 Go-Live	December 2019
<b>Operations</b>	
Develop Concept of Operations	February 2019 - May 2019
Proof of Concept Test Events	April 2019 - June 2019
Develop Detailed Operating Plans V1	June 2019 - August 2019
Develop 'ways of working'	June 2019 - August 2019
RTCC2019 Testing & Readiness	October 2019 - November 2019
RTCC Operational review	April 2020 - July 2020

RTCC2020 Detailed Operations Plan v2	September 2020 - December 2020
<b>Design, layout &amp; connectivity</b>	
Mechanical & Electrical Fit Out	May 2019 - July 2019
Installation of Furniture Fittings & Equipment	July 2019 - August 2019
Establish Data Links	May 2019 - September 2019
Testing & Readiness	September 2019 - November 2019
<b>Organisation</b>	
Develop RTCC 2019 Organisational Structure	February 2019 - May 2019
Develop Role Profiles	April 2019 - June 2019
Recruitment	May 2019 - July 2019
Engage Unions	May 2019 - June 2019
Develop training requirements	May 2019 - June 2019
Deliver Training	August 2019 - October 2019
Procure Incident Management System	April 2019 - September 2019
<b>Highway Interventions</b>	
Highway Intervention Strategy	April 2019 - June 2019
Site Surveys	May 2019 - August 2019
Procure Phase 1 interventions	May 2019 - June 2019
Phase 1 Interventions	September 2019 - December 2019
Phase 2 Interventions	January 2020 - June 2020
Phase 3 Interventions	July 2020 - December 2020
<b>Customer Information</b>	
Channel Development	March 2019 - December 2019
Identify Data Sources	March 2019 - September 2019
Introduce Social Listening Capability	March 2019 - September 2019
Revise Network West Midlands Website	May 2019 - December 2019
Develop Journey Planner	May 2019 - December 2019
<b>Technical &amp; Operation Intelligence &amp; Data</b>	
Identify Modal Performance Metrics	March 2019 - May 2019
Develop RTCC Modal Performance Dashboards	March 2019 - May 2019
Establish Initial Data Feeds	April 2019 - July 2019
Enhance Data Feeds	July 2019 - December 2020
Establish Network 'Normal' Baseline	July 2019 - December 2020
<b>Commercialisation</b>	
Develop Commercialisation Plan	January 2020 - August 2020
Identify Commercialisation Opportunities	Ongoing
<b>Skills Academy</b>	
Undertake Training Needs analysis	April 2019 - July 2019
Identify partnership / sponsorship opportunities	June 2019 - October 2019
Develop Programme	June 2019 - August 2019

Recruit intake 1	September 2019 - December 2019
Deliver intake 1	January 2020 onwards
Recruit intake 2	January 2020 - August 2020
Deliver intake 2	July 2020 onwards

There are no statutory or other consents required for this project.

**Planning permission and other relevant statutory permissions**

Planning permission is not required for this project.

**5. If you've been to procurement, how has this impacted price?**

The project has not yet reached the stage where procurement is appropriate. Subject to approval of this FBC, the elements of the project which need to be procured will be clarified along with the specification for what is required. Procurement will then take place as described in Section E4.

**6. If you haven't, why not? What are your plans for doing so?**

See the response to Question 5.

## Financial Case

### Section F: - Financial Analysis of the recommended Option

#### Section F1: Costs and Cost Assumptions

##### 7. Please highlight any changes to the Costs and Cost Assumptions

###### Cost categories

Sixteen cost categories were defined for the RTCC as follows:

- C1 - Physical space;
- C2 – Workstations;
- C3 – Systems;
- C4 – IT;
- C4 – Data;
- C6 – Communications;
- C7 - External Staff;
- C8 – CCTV;
- C9 - Customer Information;
- C10 - Third Party Data;
- C11 – Resilience;
- C12 – Highway Interventions;
- C13 – Staff;
- C14 – Training;
- C15 - Business Transformation; and
- C16 - Project management.

The capital and revenue costs for each of these sixteen categories for the preferred option are shown below. The details are provided in Appendix I4:

<b>Cost category</b>	<b>Capital costs £m (actual)</b>	<b>Revenue costs 2019/20 to 2028/29, £m (actual)</b>
C1 - Physical space	£0.39	£0.00
C2 - Workstations	£0.19	£0.00
C3 - Systems	£0.77	£0.41
C4 - IT	£0.67	£0.30
C5 - Data	£0.13	£0.36
C6 - Communications	£0.48	£0.43
C7 - External Staff	£0.08	£0.00
C8 - CCTV	£0.16	£0.00
C9 - Customer Information	£2.64	£0.52

C10 - Third Party Data	£1.42	£0.16
C11 - Resilience	£0.00	£0.31
C12 - Highway Interventions	£8.90	£0.67
C13 - Staff	£1.12	£6.06
C14 - Training	£0.06	£0.12
C15 - Business Transformation	£0.05	£0.00
C16 - Project Management	£0.16	£0.00
<b>Sub-total (actual)</b>	<b>£17.22</b>	<b>£9.35</b>
<b>Contingency, £m (actual)</b>	<b>£4.31</b>	<b>£1.40</b>
<b>Total, £m (actual)</b>	<b>£21.53</b>	<b>£10.75</b>

Note that for the purposes of calculating the benefit : cost ratio, present value prices were used (see Appendix I12). These are as follows

Cost category	Capital costs £m (present)	Revenue costs 2019/20 to 2028/29, £m (present)
<b>Total, £m (present value)</b>	<b>£20.54</b>	<b>£9.05</b>

## Section F2: Funding, Financing and Assumptions

### 8. Please highlight any changes to the Funding, Financing and Assumptions

#### Sources of funding

Sources of funding for the capital cost of the RTCC include the Transforming Cities Fund, Midlands Connect and the Government's Industrial Strategy Grand Challenge on the Future of Mobility.

The estimated capital implementation costs are affordable within the overall capital funding available. A funding profile has already been agreed with the DfT over the next four years. Within the funding agreement, the first call on Grant draw down has been prioritised to the Wednesbury Brierley Hill Metro Extension, to the amount of £207m. The funding agreed within the TCF2 Congestion Management Plan (£18m) will not be available until 21/22. As a consequence, the majority of the costs will be incurred in advance of funding received, which may require cash-flowing. To partially mitigate this financial risk, a prioritisation review is underway with Project Managers, to confirm delivery plans and cash-flow requirements.

In terms of the estimated revenue costs of operating the RTCC, the 2019/20 revenue costs are contained within budgeted funding within the overall 2019/20 Transport Delivery Revenue budget.

As part of the delivery of the RTCC, there will be a programme of highways interventions which will upgrade existing traffic signal technologies or introduce new traffic management and monitoring assets such as CCTV (Cost Category C12). This part of the programme will be delivered over a three year period and will ensure that the investments fit into the priorities for the network management duty of each local authority and the requirements of the Congestion management Plan. These investments will be agreed at a local authority level and any revenue requirements for the management of new assets will need to be considered. This however does present an opportunity to introduce new energy efficient technologies e.g. LED signals, which could have a revenue saving for the authority in terms of their ongoing management. TfWM will work very closely with each authority to define the delivery programme and manage resources.

It should be noted that options for funding for the estimated revenue costs beyond 2020/21 are currently being assessed and will provide the basis of a clear and realistic funding strategy to contain those costs within existing

WMCA resources. This strategy will need to be integrated into the TfWM Medium Term Financial Plan which will consolidate the financial pressures and priorities of the WMCA for onward consideration by local authorities in their financial planning cycles. The funding strategy will take account of any commercial opportunities to contribute towards and / or negate the impact against the Transport Levy. The strategy will be overseen and agreed by the TfWM Board and the WMCA Board.

As part of the wider agreement with the government, the Combined Authority (or other decision making authority) must have arrangements in place to ensure that where funding is allocated there are local systems in place to ensure that resources are spent with regularity, propriety and with value for money in mind. These arrangements should also endorse that projects are viable and support the aspirations of the Strategic Economic Plan. The RTCC project presents a unique set of circumstances and an opportunity for a new approach in assuring the project as it progresses. It is the intention that the project team continue to work alongside the WMCA's assurance function to monitor and support implementation following sign off of the FBC.

### Cost assumptions

Key aspects of the cost calculation were as follows:

- Costs were prepared in actual figures and converted to present value using a discount rate of 3.5% in accordance with HMT Green Book guidance;
- The assessment period for costs and benefits was 10 years to cover the same period as the benefits appraisal (see Section F4);
- Where possible, costs were based on market costs or on experience from other comparable projects;
- For costing purposes, the development and implementation of the initial implementation of the RTCC was assumed to be complete by the end of 2019 with full capabilities being available from 2021;
- Contingencies of 25% of the capital costs and 15% of the revenue costs were applied to allow for any further uncertainties and for risk mitigation. A lower contingency was applied to the revenue costs to reflect the outcomes of the comprehensive stakeholder engagement and the extent to which revenue costs such as resourcing, maintenance and other operational costs are well understood based on the WMCA's current monitoring operations; and
- CPI inflation forecast from the Bank of England Monetary Committee was used as the reference inflation rate. The average of the forecast inflation rate until 2021 was used and then the 2021 inflation rate was used for 2022-2027.

## Section F3: Cashflow

### 9. Please provide an updated Cashflow.

Cost profiling for the preferred option is as follows:

	Financial Year (Actual)										Total £m
	19/20 £m	20/21 £m	21/22 £m	22/23 £m	23/24 £m	24/25 £m	25/26 £m	26/27 £m	27/28 £m	28/29 £m	
<b>Capital costs</b>	£5.29	£4.32	£4.15	£3.03	£0.00	£0.40	£0.00	£0.05	£0.00	£0.00	<b>£17.22</b>
<b>Capital cost contingency</b>	£1.32	£1.08	£1.04	£0.76	£0.00	£0.10	£0.00	£0.01	£0.00	£0.00	<b>£4.31</b>
<b>Capital cost total</b>	£6.61	£5.40	£5.18	£3.79	£0.00	£0.49	£0.00	£0.06	£0.00	£0.00	<b>£21.53</b>
<b>Revenue costs</b>	£0.25	£0.72	£0.94	£0.96	£1.00	£1.08	£1.05	£1.08	£1.15	£1.12	<b>£9.35</b>

<b>Revenue cost contingency</b>	£0.04	£0.11	£0.14	£0.14	£0.15	£0.16	£0.16	£0.16	£0.17	£0.17	<b>£1.40</b>
<b>Revenue cost total</b>	£0.29	£0.83	£1.08	£1.10	£1.15	£1.24	£1.21	£1.24	£1.32	£1.28	<b>£10.75</b>
<b>Total Costs (actual prices)</b>	£6.90	£6.22	£6.26	£4.89	£1.15	£1.74	£1.21	£1.30	£1.32	£1.28	<b>£32.28</b>

Note that for the purposes of calculating the benefit : cost ratio, present value prices were used (see Appendix I12). These are as follows

	Financial Year (Present value)										Total £m
	19/20 £m	20/21 £m	21/22 £m	22/23 £m	23/24 £m	24/25 £m	25/26 £m	26/27 £m	27/28 £m	28/29 £m	
<b>Total Costs (present value)</b>	£6.90	£6.01	£5.84	£4.41	£1.00	£1.46	£0.99	£1.02	£1.01	£0.94	<b>£29.59</b>

The approach taken to defining contingency costs is define in Section F2.

### Commercialisation

The above cashflow does not take account of commercialisation revenue that the mature RTCC is expected to be able to generate. This includes:

- Providing CCTV monitoring services for stakeholders including local authorities. Based on current similar activities, once the RTCC is fully operational, this expected to generate in the order of **£300,000** per year (present value);
- The design will allow parts of the RTCC to be divided off and made available for rent to provide transport monitoring and coordination for non-WMCA events. Based on an assumption of £2,000 per day and ten event days per year, this is expected to generate in the order of **£20,000** per year (present value);
- Providing a resilience facility for the West Midlands Police Event Control Suite (ECS). Based on the cost of dedicating one desk to ECS resilience and on a share of the power, communications and maintenance costs associated with that dedicated desk, it is assumed that **£8,000** per year (present value) could be generated. Should more desks need to be dedicated, additional revenue will be generated at around **£5,000** per additional desk; and
- Providing customised feeds of data generated by the RTCC to private sector organisations. This has two aspects:
  - Data provided to private sector data providers to supplement and validate the data they provide to their customers. The revenue that could be generated from the provision of this kind of data is difficult to assess given the lack of comparative services in the market. However for the purposes of this FBC, based on a percentage of the cost of a data feed that a market-leading data provider has negotiated with the WMCA, it is estimated that an effective revenue in the order of **£20,000** per year per provider (present value) could be generated. It is assumed that this “revenue” would come in the form of a reduction on the price that the WMCA pays to the third-party data provider if it is a subscriber to their data feed;
  - Specialised data feeds provided to private sector companies such as logistics firms. The revenue that could be generated from the provision of this kind of data is difficult to assess given the lack of comparative services in the market but for the purposes of this FBC, it is assumed that annual revenue could range from **£3,500 to £7,000** per company. This is based on assumptions of the setup and

administration costs together with assumptions of the effort required to oversee the extraction of the data 365 days per year.

## Section F4: Benefits Profiling

### 10. Please provide an updated profile of the qualitative and quantitative benefits of the project

#### Benefits overview

The RTCC was considered to primarily have quantifiable and non-quantifiable benefits. As the RTCC will be an operational overlay on existing services, no significant cash releasing benefits exist (for example, the deployment of RTCC personnel on non-RTCC tasks when not supporting 24/7 operations), these have yet to be quantified pending agreement of operational practices and so have not been included in the appraisal.

#### Benefit categories

Twelve quantifiable and non-quantifiable benefits have been defined based on the proposed RTCC capabilities. These are as follows:

- B1 – Capability to coordinate communication to the traveling public including advice on how to avoid delays through alternative routes, methods and modes supporting a move to more sustainable journeys [quantifiable but already taken into account in assessing a number of the other quantifiable benefits]
- B2 – Provision of a regional coordination umbrella across core partners [quantifiable but already taken into account in assessing a number of the other quantifiable benefits];
- B3 – Capability to provide umbrella coordination of the region's transport networks out of UTC Centre normal operating hours [quantifiable];
- B4 – Capability to coordinate the development of regional operational plans [non-quantifiable];
- B5 - Capability to coordinate interventions in day-to-day network operations (based on agreed operational plans) to improve regional network performance [quantifiable but already taken into account in assessing a number of the other quantifiable benefits];
- B6 – Capability to coordinate the development of contingency plans to mitigate the impact of unplanned events [quantifiable but already taken into account in assessing B7];
- B7 – Capability to coordinate the regional response to unplanned events (based on agreed contingency plans) [quantifiable];
- B8 – Capability to coordinate the development of plans to mitigate the impact of planned roadworks on regional transport networks [quantifiable];
- B9 – Capability to coordinate with Highways England on issues impacting the performance of the Strategic Road Network and the KRN [non-quantifiable];
- B10 – Establishment and sharing of one version of the truth across the region [non-quantifiable]
- B11 – Capability to coordinate the development of plans to mitigate the impact of construction works (such as HS2) on regional transport networks [non-quantifiable]; and
- B12 – Capability to act as the transport coordination hub for major events [non-quantifiable].

#### Benefit assumptions

Key aspects of the benefits calculation were as follows:

- Benefits were prepared in actual figures and converted to present value using a discount rate of 3.5% in accordance with HMT Green Book guidance;

- The assessment period for costs and benefits was 10 years to allow the benefits to stabilise;
- Non-quantifiable benefits were assessed using a ranking process as set out in Chapter 5 of the Green Book;
- Benefits were profiled over Years 1, 2 and 3 to ensure the gradual increase in when the benefits accrue was consistent with the phased implementation of the RTCC by 2021; and
- The development and implementation of the initial implementation of the RTCC was assumed to be complete by end of 2019 with full capabilities being available from 2021.

### Quantifiable benefits

The monetarised benefits for the preferred option were as follows:

Year	Total co-ordination and management Benefits £m	% of benefits realised in year	Realised benefits for Option 6 (Actual prices) £m
2019/20	£30.71	0%	£0.00
2020/21	£31.39	30%	£9.42
2021/22	£32.12	70%	£22.48
2022/23	£32.90	100%	£32.90
2023/24	£33.78	100%	£33.78
2024/25	£34.72	100%	£34.72
2025/26	£35.75	100%	£35.75
2026/27	£36.84	100%	£36.84
2027/28	£38.02	100%	£38.02
2028/29	£39.26	100%	£39.26
	<b>£345.49</b>		<b>£283.17</b>

Note that for the purposes of calculating the benefit : cost ratio, present value prices were used (see Appendix I12). These are as follows

Year	Realised benefits for Option 6 (Actual value) £m	Realised benefits for Option 6 (Present value) £m
2019/20	£0.00	£0.00
2020/21	£9.42	£9.10
2021/22	£22.48	£20.99
2022/23	£32.90	£29.68
2023/24	£33.78	£29.44
2024/25	£34.72	£29.24
2025/26	£35.75	£29.08
2026/27	£36.84	£28.96
2027/28	£38.02	£28.87
2028/29	£39.26	£28.81
	<b>£283.17</b>	<b>£234.15</b>

### Non-quantifiable benefits

The assessment of the non-quantifiable benefits is addressed in detail in Appendix I7.

## Section F5: Affordability and Value for Money

### 11. Please provide evidence of affordability

#### Capital costs and funding

Capital costs for the development and implementation of the RTCC are £17.22M (actual prices). In addition to this, a contingency of £4.31M (25%) was included to account for design uncertainties at this stage and risk mitigation giving a total of £21.53M (actual prices) (£20.54M in present value prices used for calculating the benefit : cost ratio – see Appendix I12).

In March 2019 the WMCA Board identified up to £18m of the Transforming Cities Fund (TCF – Round 2) in addition to £1.5m of TCF (Round 1) already allocated. An additional £2m has been made available through Midlands Connect. This funding will enable the delivery of the RTCC to meet its objectives and invest in the operation of the transport system as well as provide coordinating resources working at a regional level.

#### Revenue costs and funding

Revenue costs for the operation of the RTCC from 2019/20 to 2028/29 are £9.35M (actual prices) with a contingency of £1.40M (15%) to cover for design uncertainties at this stage and risk mitigation. This gives a total of £10.75M (actual prices) (£9.05M in present value prices used for calculating the benefit : cost ratio – see Appendix I12).

The 2019/20 revenue costs are contained within budgeted funding within the overall 2019/20 Transport Delivery Revenue budget. Options for funding for the estimated revenue costs beyond 2020/21 are currently being assessed and will provide the basis of a clear and realistic funding strategy to contain those costs within existing WMCA resources. This strategy will need to be integrated into the TfWM Medium Term Financial Plan which will consolidate the financial pressures and priorities of the WMCA for onward consideration by Local Authorities in their financial planning cycles. The funding strategy will take account of any commercial opportunities to contribute towards and / or negate the impact against the Transport Levy. The strategy will be and overseen and agreed by the TfWM Board.

Investments in highways interventions implemented as part of the RTCC programme (Cost Category C12) will be agreed at a local authority level and any revenue requirements for the management of new assets will need to be considered. TfWM will work very closely with each authority to define the delivery programme and manage resources.

Further evidence of affordability is provided in Appendices I4 and I12.

### 12. Please provide evidence of Value for Money

The three short listed options (Options 1, 3 and 6) were assessed in detail using a formal cost-benefit assessment for the quantifiable benefits and a targeted, non-monetarised assessment of the non-quantifiable benefits.

#### Benefits

As noted in Section F4 and in Appendix I14, the quantifiable benefits were calculated for the following three benefit categories:

- **B3 – Capability to provide umbrella coordination of the region’s transport networks out of UTC Centre normal operating hours** - The benefits arising from 24/7 network management capability were based on the quicker identification of incidents during the overnight period, reducing the time it takes to alert stakeholders (including emergency services) of an incident and a response, and the corresponding time saving in returning the network back to business-as-usual operating conditions;
- **B7 – Capability to coordinate the regional response to unplanned events (based on agreed contingency plans)** – The benefits arising from the early identification of unplanned events such as road

traffic accidents and other unforeseen occurrences that reduce the road capacity at some point, e.g. broken down vehicle, illegal parking and emergency access to a non-transport incident. Benefits will be time savings derived from the early identification of unplanned events and alerting core partners, resulting in reductions in response time and a corresponding reduction in the time the road capacity is reduced due to the event; and

- **B8 – Capability to coordinate the development of plans to mitigate the impact of planned roadworks on regional transport networks** – Benefits derived through better planning of roadworks across the region resulting in a reduction in the number of roadwork-days. Improved monitoring will also identify where works are not being completed right first time and hence additional roadwork-days are required for remedial works.

The outcome was as follows:

- **Short List Option 1 – Do nothing** - Zero additional benefits compared with the current situation therefore failing to meet increasing demands for travel as well as an inability to address region-wide disruption caused by roadworks, construction works, incidents and major events;
- **Short List Option 3 – Operational liaison, coordination and support capability** - Quantifiable benefits of £143.83M (actual value) (£119.86M in present value prices used for calculating the benefit : cost ratio – see Appendix I12); and
- **Short List Option 6 – Operational liaison, coordination and support capability including coordination of transport aspects of major events and coordination of responses to incidents affecting regional transport networks** - Quantifiable benefits of £283.17M (actual value) (£234.15M in present value prices used for calculating the benefit : cost ratio – see Appendix I12).

The impact of a number of other quantifiable benefits were in part, included in the three Benefit Categories but were not assessed separately to avoid double-counting any benefits.

#### Benefits : cost ratio

- **Short List Option 1 – Do nothing** – With zero additional costs and benefits compared with the current situation, this option was not considered further;
- **Short List Option 3 – Operational liaison, coordination and support capability** - Benefit-Cost ratio of 4 : 1 (based on quantifiable benefits only and using costs and benefits in present value prices – see Appendix I12); and
- **Short List Option 6 – Operational liaison, coordination and support capability including coordination of transport aspects of major events and coordination of responses to incidents affecting regional transport networks** - Benefit-Cost ratio of 7 : 1 (based on quantifiable benefits only and using costs and benefits in present value prices – see Appendix I12).

#### Risks to delivery of Option 6

There are a number of risks to delivery of the RTCC. A full risks and issue log is included in Appendix I6 but the top five risks along with their mitigations are presented below:

- **A delay in approval of either capital or revenue costs** will impact how long it takes to finalise the precise scope of the RTCC and to make it operational. As described in Section C1, the benefits start accruing as soon as the RTCC is operational so any delay in opening will impact the realisation of the benefits and potentially impact those dependent activities which are on their own fixed timeline (for example, the 2022 Commonwealth Games). MITIGATION: TfWM project team to liaise with Strategic Transport Operator Group and Combined Authority Board to address any issues or concerns as they arise;
- **Lack of agreement between all core partners** which will impact how long it takes to finalise the precise scope of the RTCC and potentially, the RTCC implementation programme. MITIGATION: The RTCC Steering Group to continue through the development and implementation of the RTCC. TfWM to ensure close liaison between all core partners and to involve them in all the review and decision making processes;
- **Lack of cooperation with wider operational partners** which may not have a direct impact on the implementation of the RTCC but may impact its ability to realise the wider benefits identified in Section C1.

MITIGATION: TfWM to ensure regular liaison with RTCC operational partners once funding is approved to carry out the detailed design;

- **Delays to the RTCC implementation programme** which could impact its ability to deliver benefits relating to dependent activities on their own fixed timeline (for example, the 2022 Commonwealth Games). MITIGATION: TfWM project team to liaise with Strategic Transport Operator Group and Combined Authority Board to address and mitigate any delays to the RTCC programme; and
- **Changes in the timetable of dependent activities** such as the HS2 construction programme or the 2022 Commonwealth Games will impact how and when the RTCC benefits can be realised. MITIGATION: TfWM project teams to ensure regular liaison to keep the separate initiatives aligned.

#### **Preferred option**

On the basis of this assessment and consideration of the risks, **Short List Option 6 was selected as the preferred option for the RTCC.**

The following points should be noted in relation to the Benefit-Cost analysis:

- Only the seven quantifiable benefits which could be monetarised have been included. The five non-quantifiable benefits which could not be monetarised in a robust way were not included in the Benefit-Cost analysis. **If the non-quantifiable benefits could have been monetarised in a robust manner, it is expected that the BCR for both Options 3 and 6 would both have been higher although Option 6 would still have had a higher BCR than Option 3;**
- A factor of 3.5% was used to discount future costs and benefits to present value in accordance with Green Book guidance; and
- The costs of risk mitigation is assumed to be addressed through the contingencies applied to capital and revenue costs.

## Management Case

### Section G: Programme Management Case - Achievability of Project Components

#### Section G1: Project Plan (Extract of Key Milestones)

#### 13. Please provide an updated list of Key Project Milestones and Gantt Chart (see [Appendix I5])

The following defines the critical path milestones for the design, implementation and commencement of operation of the RTCC.

Milestone	Expected programme
<b>Programme</b>	
Final Business Case	January 2019 - May 2019
RTCC2020 Delivery Programme	July 2019 - August 2019
RTCC2019 Go-Live	December 2019
<b>Operations</b>	
Develop Concept of Operations	February 2019 - May 2019
Proof of Concept Test Events	April 2019 - June 2019
Develop Detailed Operating Plans V1	June 2019 - August 2019
Develop 'ways of working'	June 2019 - August 2019
RTCC2019 Testing & Readiness	October 2019 - November 2019
RTCC Operational review	April 2020 - July 2020
RTCC2020 Detailed Operations Plan v2	September 2020 - December 2020
<b>Design, layout &amp; connectivity</b>	
Mechanical & Electrical Fit Out	May 2019 - July 2019
Installation of Furniture Fittings & Equipment	July 2019 - August 2019
Establish Data Links	May 2019 - September 2019
Testing & Readiness	September 2019 - November 2019
<b>Organisation</b>	
Develop RTCC 2019 Organisational Structure	February 2019 - May 2019
Develop Role Profiles	April 2019 - June 2019
Recruitment	May 2019 - July 2019
Engage Unions	May 2019 - June 2019
Develop training requirements	May 2019 - June 2019
Deliver Training	August 2019 - October 2019
Procure Incident Management System	April 2019 - September 2019
<b>Highway Interventions</b>	
Highway Intervention Strategy	April 2019 - June 2019
Site Surveys	May 2019 - August 2019
Procure Phase 1 interventions	May 2019 - June 2019
Phase 1 Interventions	September 2019 - December 2019

Phase 2 Interventions	January 2020 - June 2020	
Phase 3 Interventions	July 2020 - December 2020	
<b>Customer Information</b>		
Channel Development	March 2019 - December 2019	
Identify Data Sources	March 2019 - September 2019	
Introduce Social Listening Capability	March 2019 - September 2019	
Revise Network West Midlands Website	May 2019 - December 2019	
Develop Journey Planner	May 2019 - December 2019	
<b>Technical &amp; Operation Intelligence &amp; Data</b>		
Identify Modal Performance Metrics	March 2019 - May 2019	
Develop RTCC Modal Performance Dashboards	March 2019 - May 2019	
Establish Initial Data Feeds	April 2019 - July 2019	
Enhance Data Feeds	July 2019 - December 2020	
Establish Network 'Normal' Baseline	July 2019 - December 2020	
<b>Commercialisation</b>		
Develop Commercialisation Plan	January 2020 - August 2020	
Identify Commercialisation Opportunities	Ongoing	
<b>Skills Academy</b>		
Undertake Training Needs analysis	April 2019 - July 2019	
Identify partnership / sponsorship opportunities	June 2019 - October 2019	
Develop Programme	June 2019 - August 2019	
Recruit intake 1	September 2019 - December 2019	
Deliver intake 1	January 2020 onwards	
Recruit intake 2	January 2020 - August 2020	
Deliver intake 2	July 2020 onwards	

A gantt chart showing these critical path milestones is included in Appendix I5.

## Section G2: Risk Monitoring and Management

### 14. Please extract the details of the top 5 Risks from your project Risk Register:

Description of Risk	A <b>delay in approval of either capital or revenue costs</b> will impact how long it takes to finalise the precise scope of the RTCC and to make it operational. As described in Section C1, the benefits start accruing as soon as the RTCC is operational so any delay in opening will impact the realisation of the benefits and potentially impact those dependent activities which are on their own fixed timeline (for example, the 2022 Commonwealth Games).
Impact (1-4)	4
Probability (1-4)	1

RAG rating (Red, Amber, Green)	Amber
Risk owner	TfWM
Mitigation	TfWM project team to liaise with Strategic Transport Operator Group and Combined Authority Board to address any issues or concerns as they arise.
Description of Risk	<b>Lack of agreement between all core partners</b> which will impact how long it takes to finalise the precise scope of the RTCC and potentially, the RTCC implementation programme.
Impact (1-4)	4
Probability (1-4)	2
RAG rating (Red, Amber, Green)	Amber
Risk owner	TfWM
Mitigation	RTCC Steering Group to continue through the development and implementation of the RTCC. TfWM to ensure close liaison between all core partners and to involve them in all the review and decision making processes.
Description of Risk	<b>Lack of cooperation with wider operational partners</b> which may not have a direct impact on the implementation of the RTCC but may impact its ability to realise the wider benefits identified in Section C1.
Impact (1-4)	3
Probability (1-4)	2
RAG rating (Red, Amber, Green)	Amber
Risk owner	TfWM
Mitigation	TfWM to ensure regular liaison with RTCC operational partners once funding is approved to carry out the detailed design.
Description of Risk	<b>Delays to the RTCC implementation programme</b> which could impact its ability to deliver benefits relating to dependent activities on their own fixed timeline (for example, the 2022 Commonwealth Games).
Impact (1-4)	4
Probability (1-4)	3
RAG rating (Red, Amber, Green)	Red
Risk owner	TfWM
Mitigation	TfWM project team to liaise with Strategic Transport Operator Group and Combined Authority Board to address and mitigate any delays to the RTCC programme.

Description of Risk	<b>Changes in the timetable of dependent activities</b> such as the HS2 construction programme or the 2022 Commonwealth Games will impact how and when the RTCC benefits can be realised.
Impact (1-4)	4
Probability (1-4)	2
RAG rating (Red, Amber, Green)	Amber
Risk owner	TfWM
Mitigation	TfWM project teams to ensure regular liaison to keep the separate initiatives aligned.

The full Risk Register is included in Appendix I6.

**15. For all other risks not identified in Q. 14 (e.g. force majeure), please provide details of who will own the risk.**

TfWM will be the owner of all risks not identified in the answer to Question 14.

### Section G3: Freedom of Information

**16. Please indicate whether any information in this proforma is considered exempt from release under Section 41 of the Freedom of Information Act 2000. Please outline why if so.**

There are no exemptions from release under Section 41 of the Freedom of Information Act 2000.

### Section G4: State Aid Condition

**17. Please highlight any State Aid issues that were not raised in the OBC (see OBC Q 46).**

As this is a wholly public-sector project, no state aid issues are anticipated.

**18. All applicants need to take steps to satisfy themselves that any WMCA funding approved does not amount to unlawful State Aid. Further confirmation to this effect will be requested at the Full Business Case stage. A declaration of compliance with EU State Aid regulations will be required prior to any WMCA funding being provided.**

**If your project is awarded funds from the WMCA it will be subject to a condition requiring the repayment of any WMCA funding in the event that the European Commission determines that the funding constitutes unlawful State Aid.**

<b>Please confirm your acceptance to this condition:</b>	<b>Yes</b>	<i>No</i>
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### Section G5: Project Governance: Key roles & Responsibilities

**19. Please set out the Key Roles in governing the Project, with named officers, which will oversee, deliver and close the project.**

#### RTCC Board

On approval of the funding for the next phase of development of the RTCC, the existing RTCC Steering Group should transition into the RTCC Board. The Board will act as the programme sponsor.

Other key functions will include authorising significant changes to the project plan, agreeing the overall project plan and the supporting operational arrangements and overseeing the management and mitigation of the most serious project risks.

In practice, the Board will not have day-to-day contact with the project and will delegate operational matters to the Senior Responsible Owner, the Project Management Office and the Project Management Board in order to implement the project according to the agreed project and operational plans and the resulting business and contractual agreements. The RTCC Board will review progress during the official review process and will also receive regular progress updates from the Project Management Team. Members of the RTCC Board should be the same as the current RTCC Steering Group.

### **Senior Responsible Owner**

The Senior Responsible Owner (SRO) will be the visible owner of the overall business change accountable for successful delivery and will be recognised as the key leadership figure in driving the development of the RTCC. The SRO will be Anne Shaw, Director of Network Resilience at TfWM.

### **Project Management Office**

The Project Management Office will support the SRO by carrying out the day-to-day management, coordination and performance of the project. The PMO will work closely with the core partners and operational partners and will be based in the WMCA office in Summer Lane, Birmingham.

### **Project Management Board**

In addition to the Project Management Office, there will be a Project Management Board that will meet at least monthly, chaired by the SRO and including officers from the PMO and at least two representatives from the RTCC Board.

The Project Management Board will be responsible for reviewing and actioning issues arising from the project including the progress and achievement of the agreed project milestones and deliverables, the delivery of the supporting operational arrangements and also procurement and contractual matters, programme and project resourcing and financial matters.

The Project Management Board will be responsible for monitoring and actioning the risk management process, the contract management process and the change management process and providing assurance to the RTCC Board, elevating issues for their attention and agreement as set out in the Project Management Plan and supporting documents.

## **20. Please outline any governance procedures that will support the successful delivery of the project**

The WMCA Assurance Framework will specify the governance processes used to oversee the delivery, implementation and operation of the RTCC.

This Framework sets out six stages to the lifecycle of a project with the preparation of this FBC being Stage 4. Once this is approved, the requirements of Stage 5 - Delivery and Regular Evaluation/Monitoring and Stage 6 - Contract Completion will be used to govern the further development of the RTCC.

The Framework sets out the documents to be prepared for each Stage and defines the role of the Mayor of the West Midlands, the Appraisal and Evaluation Panel, the Investment Advisory Group, the WMCA Management Board and the WMCA Board in governance at each Stage.

## **Section G6: Key Stakeholder engagement strategy**

### **21. Please identify your preferred strategy for engaging key Stakeholders in making your project successful.**

The project has numerous and diverse stakeholders whose input, commitment and involvement are essential to the success of the project.

Core partners have been active in developing the concept of the RTCC since January 2018 through the RTCC Steering Group. Since February 2019, the core partners along with a broader cross-section of stakeholders from across the region have developed and refined the RTCC through a series of workshops.

The ongoing management of stakeholder relationships will be key to the achievement of the desired outcomes of the project. This will be achieved by responsibility being clearly defined within the Project Management Office for the key stakeholders and also for interest groups and thematic areas.

The project will set the means of communication in the Communication Plan and will also provide key tools such as a project section on the TfWM website, regular stakeholder updates and the formal reports on the project, including at the completion of the project.

## Section G7: Communications Plan or strategy

### **22. Please identify your preferred communications strategy for Internal Stakeholders and External Stakeholders for reporting progress and gathering support.**

The strategy for communicating with the stakeholders listed in Section C4 is as follows:

#### Core Partners

- All core partners will continue to be integral to the development and implementation of the RTCC and will remain as members of the RTCC Board as it transitions from the Steering Group;
- The core partners will also continue to be involved in further workshops to refine the details of the RTCC; and
- The relationship between the core partners and the RTCC will be set out in the operational model and defined in detail in the operational agreements to be drafted and agreed with all core partners. These will set out how the core partners will work together to support the RTCC and to be able to take advantage of the benefits it offers once operational.

#### Operational Partners

- Regular engagement with operational partners will be critical to the development and implementation of the RTCC. The details of communication and engagement with the operational partners will be addressed during development of the operational model and defined in detail as part of the operational agreements to be concluded with each Operational Partner;
- Many of the operational partners will also continue to be involved in further workshops to refine the details of the RTCC; and
- Once operational, the RTCC will engage with partners on a daily basis as part of its remit to provide a regional coordination umbrella.

#### Innovation Partners

- Regular engagement with innovation partners will be necessary if the RTCC is to realise all of its benefits. The details of communication and engagement with innovation partners will be addressed during development of the operational model;
- While still to be confirmed, engagement and communication with innovation partners will initially be at two levels:
  - On a one-to-one basis with members of the PMO to raise awareness of the RTCC, to solicit interest in being part of the initiative and to formalise partner's involvement in a manner

consistent with the operational model, with operational agreements and with additional requirements such as procurement rules (where third party services are being sought for example); and

- Through RTCC outreach functions such as a website, newsletter, regular mailshots, meetings, etc.

## Section G8: Issue Resolution Plan

### 23. Please extract the top 5 Issues from your project Issue log:

Description of Issue	Timescales for approval of funding for the RTCC given the need to mitigate the impacts of HS2 construction.
Impact (H,M,L)	High
Owner for resolution	TfWM
Resolution	Submission and approval of the FBC to secure funding for the next stage of development of the RTCC.
Resolution Date	May 2019

Description of Issue	Growing levels of congestion and journey time reliability on the West Midlands network and the effect on the WMCA's reputation.
Impact (H,M,L)	High
Owner for resolution	TfWM
Resolution	The RTCC will be able to start realising benefits through the provision of a regional coordination umbrella on opening. The RTCC will assist in coordinating the development of operational plans with partners, providing the capability to identify issues on transport networks using its common operating view, and coordinating the implementation of mitigation measures.
Resolution Date	Winter 2019 on the RTCC becoming operational.

Description of Issue	The agreed programme of works for HS2, other transport network developments and commercial/housing schemes result in an unsustainable reduction in network capacity.
Impact (H,M,L)	High
Owner for resolution	TfWM
Resolution	The RTCC will be able to start realising benefits through the provision of a regional coordination umbrella on opening.
Resolution Date	Winter 2019 on the RTCC becoming operational.

Description of Issue	The need for true partnership cooperation between all key stakeholders to deliver the level and quality of scheme and project development required to meet the aspirations of politicians and others.
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Impact (H,M,L)	High
Owner for resolution	RTCC Board, TfWM and core partners
Resolution	The operational model and associated operational agreements with core partners and operational partners will be developed as part of the next phase of the RTCC. The RTCC will then start realising benefits through the provision of a regional coordination umbrella on opening.
Resolution Date	Winter 2019 on the RTCC becoming operational.

Description of Issue	The commitments given to the Commonwealth Games, HS2 and various developments across the West Midlands are currently undeliverable without RTCC, KRN monitoring and management and other actions in the Congestion Management Plan being successfully brought forward.
Impact (H,M,L)	High
Owner for resolution	TfWM
Resolution	The RTCC will be able to start realising benefits through the provision of a regional coordination umbrella on opening. This will support a number of the initiatives set out in the Congestion Management Plan.
Resolution Date	Winter 2019 on the RTCC becoming operational.

The full Issues Register is included in Appendix I6.

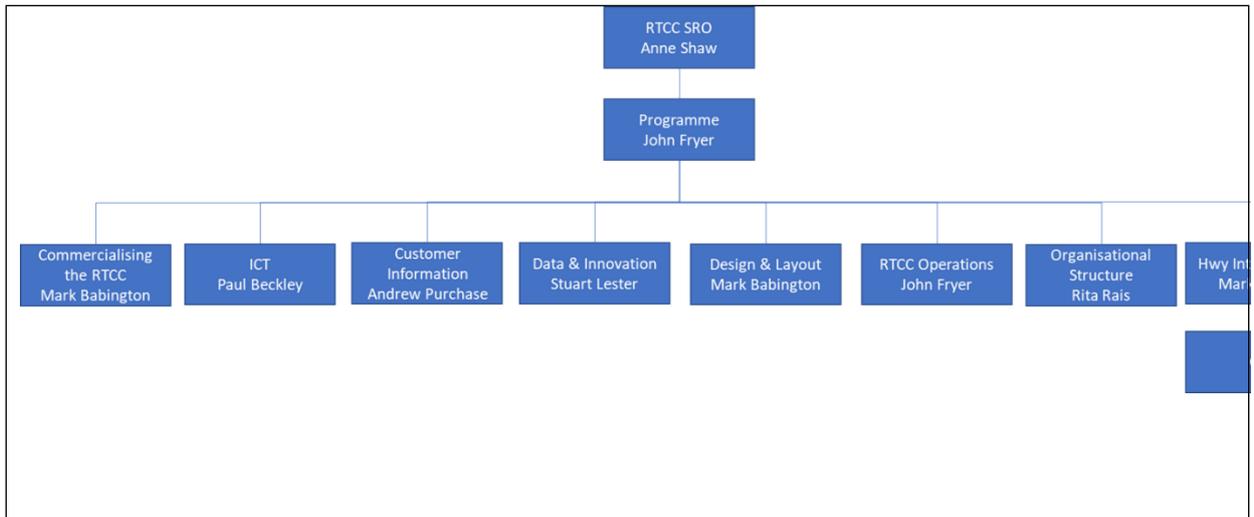
## Section G9: Project Team

### 24. Please describe the experience of the project team and attach the team structure.

During the Delivery Phase, the project team will be:

- Anne Shaw, the TfWM Director of Network Resilience as SRO;
- TfWM's Programme Manager
- TfWM's Project Manager;
- TfWM's KRN Network management;
- TfWM's Safety and Security Manager; and
- Representatives from TfWM Procurement, Legal Services and Human Resources.

Alongside this project team, eight distinct Workstreams have been defined, each with a nominated Workstream Lead. The Workstreams and their respective Leads are as follows:



## Recommendation

### Section H: Conclusion

#### 25. Please state clearly the desired action that your Business Case supports. Please outline.

This Business Case seeks approval for funding the capital costs of development and implementation of a Regional Transport Coordination Centre for the West Midlands.

Option 6 has been selected as the preferred option. This will provide the capability for 24/7 operational liaison, coordination and support between agencies and transport operators. This will also include the capability to pro-actively alert core partners to transport issues at authority boundaries or which have a regional impact, actively coordinate transport responses to incidents, greater cooperation with public transport operators and to act as a transport coordination hub for major events.

Capital costs for the development and implementation of Option 6 are £17.22M (actual prices). In addition to this, a contingency of £4.31M (25%) was included to account for design uncertainties at this stage and risk mitigation giving a total of **£21.53M** (actual prices).

In March 2019 the WMCA Board identified up to £18m of the Transforming Cities Fund (TCF – Round 2) in addition to £1.5m of TCF (Round 1) already allocated. An additional £2m has been made available through Midlands Connect. This funding will enable the delivery of the RTCC to meet its objectives and invest in the operation of the transport system as well as provide coordinating resources working at a regional level.

Revenue costs for the operational of Option 6 from 2019/20 to 2028/29 are £9.35M (actual prices) with a contingency of £1.40M (15%) to cover for design uncertainties at this stage and risk mitigation. This gives a total of **£10.75M** (actual prices).

The 2019/20 revenue costs are contained within budgeted funding within the overall 2019/20 Transport Delivery Revenue budget. Options for funding for the estimated revenue costs beyond 2020/21 are currently being assessed and will provide the basis of a clear and realistic funding strategy to contain those costs within existing WMCA resources. This strategy will need to be integrated into the TfWM Medium Term Financial Plan which will consolidate the financial pressures and priorities of the WMCA for onward consideration by Local Authorities in their financial planning cycles. The funding strategy will take account of any commercial opportunities to contribute towards and / or negate the impact against the Transport Levy. The strategy will be and overseen and agreed by the TfWM Board.

Investments in highways interventions implemented as part of the RTCC programme (Cost Category C12) will be agreed at a local authority level and any revenue requirements for the management of new assets will need to be considered. TfWM will work very closely with each authority to define the delivery programme and manage resources.

The quantifiable benefits for Options 6 were calculated to be £283.17M (actual value).

Using costs in present value prices (£29.59M) and benefits in present value prices (£234.15M), the benefit cost ratio for Option 6 is 7:1.

## **Section I: Appendices**

- I1: Stakeholder Map**
- I2: A Profile for each Output / Outcome and Non-quantifiable Benefits Assessment**
- I3: Evidence of planning permission**
- I4: Detailed breakdown of Project Costs by month**
- I5: Full Project Plan**
- I6: Risk and Issues Log**
- I7: Non-monetarised Benefits**
- I8: Benefits Realisation Plan**
- I9 Summary of Deliverable 1 - Preliminary Strategic Case**
- I10: Summary of Deliverable 2 - Objectives and Long List of Options**
- I11: Summary of Deliverable 2a - Initial sifting of the options**
- I12: Summary of Deliverable 3 – Preferred Option**
- I13: Indicative logic model for the Monitoring and Evaluation Plan**
- I14: Calculation of benefits**
- I15: Derivation of the long list of options**

## Appendix I1

### Stakeholder Map

The core partners, operational partners and innovation partners for the RTCC are as follows:

#### Core Partners

The following organisations will need to be involved in the creation and operation of the RTCC. The nature of the relationship between them will be developed further as part of the business case for the preferred option.

- Transport for West Midlands;
- Birmingham City Council;
- Solihull Metropolitan Borough Council;
- Wolverhampton City Council;
- Dudley Metropolitan Borough Council;
- Walsall Metropolitan Borough Council;
- Sandwell Metropolitan Borough Council;
- Coventry City Council;
- Highways England;
- West Midlands Police;
- National Express; and
- Network Rail.

#### Operational Partners

The organisations listed here represent the wider community of players who will interact with the RTCC as part of their operations. Not all will be involved at Day One but their level of interaction will increase over time and in response to specific events or issues.

- Major Road Network Partners:
  - M6 Toll; and
  - Midlands Connect.
- Neighbouring local highway authorities:
  - Warwickshire;
  - Staffordshire; and
  - Worcestershire.
- Emergency services:
  - Staffordshire Police;
  - West Mercia Police;
  - Warwickshire Police;
  - British Transport Police; and

- Other emergency services such as the Fire and Rescue Service and the Ambulance Service.
- Major Traffic Generators:
  - Birmingham Airport;
  - Advanced manufacturing facilities (such as Jaguar-Land Rover for example);
  - General freight and logistics facilities (DHL, etc.); and
  - Large shopping centres.
- Other transport modes:
  - Local bus operators
  - Train operating companies;
  - High Speed 2;
  - Midland Metro; and
  - Cycle Share;
- Travel Media:
  - Traffic and travel information service providers; and
  - Local media and communication organisations.

### **Innovation Partners**

The RTCC will need to continually evolve to address increasing needs and new challenges as economic growth takes place and the region continues to develop. These organisations will assist the RTCC to develop its intellectual capital and to exploit future developments in technology and data processing.

- App and data service providers (Citymapper, INRIX, Google and Waze, etc.);
- Government technology and innovation centres (Transport Systems Catapult, etc.);
- Universities; and
- Advanced manufacturing industries.

## Appendix I2

### A Profile for each Output / Outcome

The benefits profile presented in Section F4 is based on the following assumptions:

- Benefits for the preferred option are assumed to accrue as follows:
  - 30% in 2020/21;
  - 70% in 2021/22; and
  - 100% from 2022/23 and for each subsequent year.

The rationale for this benefits profile is as follows:

- Some benefits will accrue as the RTCC comes online even before it is fully operational in December 2019;
  - All benefits will accrue during the period 2020/21 albeit at a lower rate. 30% was considered to be a fair reflection of the total benefits accruing during the period April 2020 to March 2021;
  - Operational agreements and associated operational procedures are not expected to be fully optimised when the RTCC first opens. This is reflected by assuming benefits accrue at 70% between April 2021 and March 2022;
  - Full accrual of RTCC benefits is not assumed to start until 2022/23 and continues at this rate to the end of the appraisal period (March 2029); and
  - There is no expectation of a dip in overall benefits on opening. All benefits accruing due to the implementation of the RTCC are additional to any associated benefits accruing from the current situation.
- A number of the metrics that will be used to assess the actual benefits realised will need to be baselined before the RTCC goes fully operational at the end of 2019.

The benefits profile used in the options appraisal is set out below.

Year	Total co-ordination and management Benefits £m	% of benefits realised in year	Realised benefits for Option 6 (actual prices) £m	Realised benefits for Option 6 (present value) £m
2019/20	£30.71	0%	£0.00	£0.00
2020/21	£31.39	30%	£9.42	£9.10
2021/22	£32.12	70%	£22.48	£20.99
2022/23	£32.90	100%	£32.90	£29.68
2023/24	£33.78	100%	£33.78	£29.44
2024/25	£34.72	100%	£34.72	£29.24
2025/26	£35.75	100%	£35.75	£29.08
2026/27	£36.84	100%	£36.84	£28.96
2027/28	£38.02	100%	£38.02	£28.87
2028/29	£39.26	100%	£39.26	£28.81
	<b>£345.49</b>		<b>£283.17</b>	£234.15

## **Appendix I3**

### **Evidence of planning permission**

Planning permission is not required for this project.

## Appendix I4

### Detailed breakdown of Project Costs

Figure I4.1 shows the proposed breakdown of project costs between 2019/20 and 2028/29.

	Financial Year										Total £m
	19/20 £m	20/21 £m	21/22 £m	22/23 £m	23/24 £m	24/25 £m	25/26 £m	26/27 £m	27/28 £m	28/29 £m	
<b>Capital costs (actual prices)</b>	£5.29	£4.32	£4.15	£3.03	£0.00	£0.40	£0.00	£0.05	£0.00	£0.00	<b>£17.22</b>
<b>Capital cost contingency (actual prices)</b>	£1.32	£1.08	£1.04	£0.76	£0.00	£0.10	£0.00	£0.01	£0.00	£0.00	<b>£4.31</b>
<b>Capital cost total (actual prices)</b>	£6.61	£5.40	£5.18	£3.79	£0.00	£0.49	£0.00	£0.06	£0.00	£0.00	<b>£21.53</b>
<b>Revenue costs (actual prices)</b>	£0.25	£0.72	£0.94	£0.96	£1.00	£1.08	£1.05	£1.08	£1.15	£1.12	<b>£9.35</b>
<b>Revenue cost contingency (actual prices)</b>	£0.04	£0.11	£0.14	£0.14	£0.15	£0.16	£0.16	£0.16	£0.17	£0.17	<b>£1.40</b>
<b>Revenue cost total (actual prices)</b>	£0.29	£0.83	£1.08	£1.10	£1.15	£1.24	£1.21	£1.24	£1.32	£1.28	<b>£10.75</b>
<b>Total Costs (actual prices)</b>	<b>£6.90</b>	<b>£6.22</b>	<b>£6.26</b>	<b>£4.89</b>	<b>£1.15</b>	<b>£1.74</b>	<b>£1.21</b>	<b>£1.30</b>	<b>£1.32</b>	<b>£1.28</b>	<b>£32.28</b>

For the purposes of calculating the benefit : cost ratio, present value prices were used (see Appendix I12). These are as follows:

<b>Total Costs (present value prices)</b>	£6.90	£6.01	£5.84	£4.41	£1.00	£1.46	£0.99	£1.02	£1.01	£0.94	<b>£29.59</b>
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**Figure I4.1 Breakdown of costs 2019/20 to 2028/29**

## Appendix I5 Full Project Plan

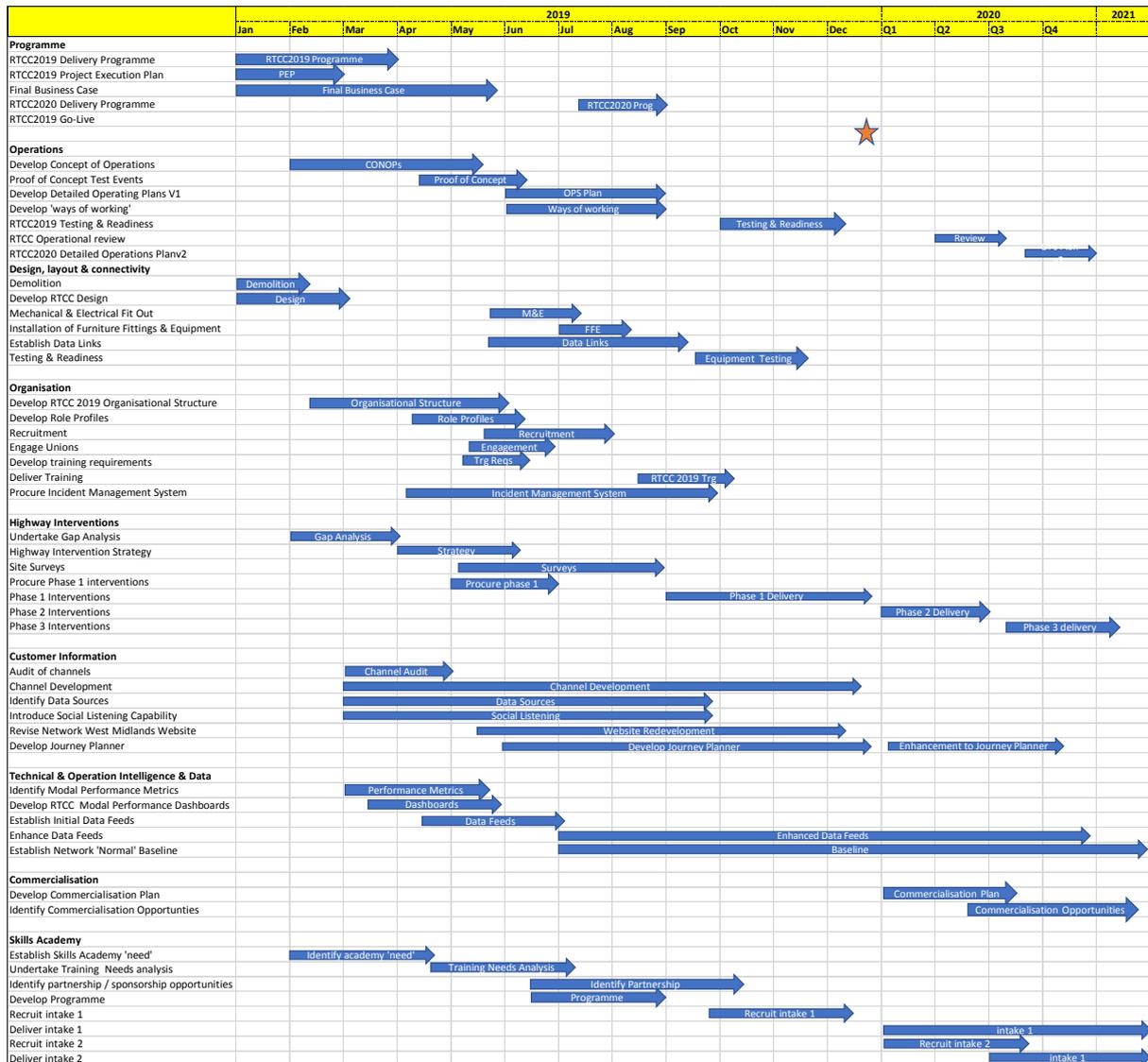
This Appendix sets out the project plan for the development of the RTCC up to December 2020.

Milestone	Expected programme
<b>Programme</b>	
Final Business Case	January 2019 - May 2019
RTCC2020 Delivery Programme	July 2019 - August 2019
RTCC2019 Go-Live	December 2019
<b>Operations</b>	
Develop Concept of Operations	February 2019 - May 2019
Proof of Concept Test Events	April 2019 - June 2019
Develop Detailed Operating Plans V1	June 2019 - August 2019
Develop 'ways of working'	June 2019 - August 2019
RTCC2019 Testing & Readiness	October 2019 - November 2019
RTCC Operational review	April 2020 - July 2020
RTCC2020 Detailed Operations Plan v2	September 2020 - December 2020
<b>Design, layout &amp; connectivity</b>	
Mechanical & Electrical Fit Out	May 2019 - July 2019
Installation of Furniture Fittings & Equipment	July 2019 - August 2019
Establish Data Links	May 2019 - September 2019
Testing & Readiness	September 2019 - November 2019
<b>Organisation</b>	
Develop RTCC 2019 Organisational Structure	February 2019 - May 2019
Develop Role Profiles	April 2019 - June 2019
Recruitment	May 2019 - July 2019
Engage Unions	May 2019 - June 2019
Develop training requirements	May 2019 - June 2019
Deliver Training	August 2019 - October 2019
Procure Incident Management System	April 2019 - September 2019
<b>Highway Interventions</b>	
Highway Intervention Strategy	April 2019 - June 2019
Site Surveys	May 2019 - August 2019
Procure Phase 1 interventions	May 2019 - June 2019
Phase 1 Interventions	September 2019 - December 2019
Phase 2 Interventions	January 2020 - June 2020
Phase 3 Interventions	July 2020 - December 2020
<b>Customer Information</b>	
Channel Development	March 2019 - December 2019

<b>Milestone</b>	<b>Expected programme</b>
Identify Data Sources	March 2019 - September 2019
Introduce Social Listening Capability	March 2019 - September 2019
Revise Network West Midlands Website	May 2019 - December 2019
Develop Journey Planner	May 2019 - December 2019
<b>Technical &amp; Operation Intelligence &amp; Data</b>	
Identify Modal Performance Metrics	March 2019 - May 2019
Develop RTCC Modal Performance Dashboards	March 2019 - May 2019
Establish Initial Data Feeds	April 2019 - July 2019
Enhance Data Feeds	July 2019 - December 2020
Establish Network 'Normal' Baseline	July 2019 - December 2020
<b>Commercialisation</b>	
Develop Commercialisation Plan	January 2020 - August 2020
Identify Commercialisation Opportunities	Ongoing
<b>Skills Academy</b>	
Undertake Training Needs analysis	April 2019 - July 2019
Identify partnership / sponsorship opportunities	June 2019 - October 2019
Develop Programme	June 2019 - August 2019
Recruit intake 1	September 2019 - December 2019
Deliver intake 1	January 2020 onwards
Recruit intake 2	January 2020 - August 2020
Deliver intake 2	July 2020 onwards
<b>Milestone</b>	<b>Expected programme</b>
<b>Programme</b>	
Final Business Case	January 2019 - May 2019
RTCC2020 Delivery Programme	July 2019 - August 2019
RTCC2019 Go-Live	December 2019
<b>Operations</b>	
Develop Concept of Operations	February 2019 - May 2019
Proof of Concept Test Events	April 2019 - June 2019
Develop Detailed Operating Plans V1	June 2019 - August 2019
Develop 'ways of working'	June 2019 - August 2019
RTCC2019 Testing & Readiness	October 2019 - November 2019
RTCC Operational review	April 2020 - July 2020
RTCC2020 Detailed Operations Plan v2	September 2020 - December 2020
<b>Design, layout &amp; connectivity</b>	
Mechanical & Electrical Fit Out	May 2019 - July 2019
Installation of Furniture Fittings & Equipment	July 2019 - August 2019
Establish Data Links	May 2019 - September 2019
Testing & Readiness	September 2019 - November 2019

<b>Milestone</b>	<b>Expected programme</b>
<b>Organisation</b>	
Develop RTCC 2019 Organisational Structure	February 2019 - May 2019
Develop Role Profiles	April 2019 - June 2019
Recruitment	May 2019 - July 2019
Engage Unions	May 2019 - June 2019
Develop training requirements	May 2019 - June 2019
Deliver Training	August 2019 - October 2019
Procure Incident Management System	April 2019 - September 2019
<b>Highway Interventions</b>	
Highway Intervention Strategy	April 2019 - June 2019
Site Surveys	May 2019 - August 2019
Procure Phase 1 interventions	May 2019 - June 2019
Phase 1 Interventions	September 2019 - December 2019
Phase 2 Interventions	January 2020 - June 2020
Phase 3 Interventions	July 2020 - December 2020
<b>Customer Information</b>	
Channel Development	March 2019 - December 2019
Identify Data Sources	March 2019 - September 2019
Introduce Social Listening Capability	March 2019 - September 2019
Revise Network West Midlands Website	May 2019 - December 2019
Develop Journey Planner	May 2019 - December 2019
<b>Technical &amp; Operation Intelligence &amp; Data</b>	
Identify Modal Performance Metrics	March 2019 - May 2019
Develop RTCC Modal Performance Dashboards	March 2019 - May 2019
Establish Initial Data Feeds	April 2019 - July 2019
Enhance Data Feeds	July 2019 - December 2020
Establish Network 'Normal' Baseline	July 2019 - December 2020
<b>Commercialisation</b>	
Develop Commercialisation Plan	January 2020 - August 2020
Identify Commercialisation Opportunities	Ongoing
<b>Skills Academy</b>	
Undertake Training Needs analysis	April 2019 - July 2019
Identify partnership / sponsorship opportunities	June 2019 - October 2019
Develop Programme	June 2019 - August 2019
Recruit intake 1	September 2019 - December 2019
Deliver intake 1	January 2020 onwards
Recruit intake 2	January 2020 - August 2020
Deliver intake 2	July 2020 onwards

A high-level gantt chart is shown below.



## **Appendix I6**

### **Risk and Issues Register**

This Appendix sets out the Risks and Issues Register for the RTCC at the time of submitting this Full Business Case.

Title	Risk Category	Risk Owner	Risk Description	Risk Problty	Risk Cost Impact	Schedule Impact	Reputn Impact	Risk RAG	Mitigation Plan
Delay in approval of either capital or revenue costs	Risk	TfWM	A <b>delay in approval of either capital or revenue costs</b> will impact how long it takes to finalise the precise scope of the RTCC and to make it operational. As described in Section C1, the benefits start accruing as soon as the RTCC is operational so any delay in opening will impact the realisation of the benefits and potentially impact those dependent activities which are on their own fixed timeline (for example, the 2022 Commonwealth Games).	2	2	4	2	Amber	TfWM project team to liaise with Strategic Transport Operator Group and Combined Authority Board to address any issues or concerns as they arise.
Lack of agreement between all core partners	Risk	TfWM	<b>Lack of agreement between all core partners</b> which will impact how long it takes to finalise the precise scope of the RTCC and potentially, the RTCC implementation programme.	2	2	4	2	Amber	RTCC Steering Group to continue through the development and implementation of the RTCC. TfWM to ensure close liaison between all core partners and to involve them in all the review and decision making processes.
Lack of cooperation with wider operational partners	Risk	TfWM	<b>Lack of cooperation with wider operational partners</b> which may not have a direct impact on the implementation of the RTCC but may impact its ability to realise the wider benefits identified in Section C1.	3	2	2	3	Amber	TfWM to ensure regular liaison with RTCC operational partners once funding is approved to carry out the detailed design.
Delays to the RTCC implementation programme	Risk	TfWM	<b>Delays to the RTCC implementation programme</b> which could impact its ability to deliver benefits relating to dependent activities on their own fixed timeline (for example, the 2022 Commonwealth Games).	4	3	4	3	Red	TfWM project team to liaise with Strategic Transport Operator Group and Combined Authority Board to address and mitigate any delays to the RTCC programme.
Changes in the timetable of dependent activities	Risk	TfWM	<b>Changes in the timetable of dependent activities</b> such as the HS2 construction programme or the 2022 Commonwealth Games will impact how and when the RTCC benefits can be realised.	4	2	2	2	Amber	TfWM project teams to ensure regular liaison to keep the separate initiatives aligned.
Timescales for funding	Issue	TfWM	Timescales for approval of funding for the RTCC given the need to mitigate the impacts of HS2 construction.	2	2	4	2	Amber	TfWM project team to liaise with Strategic Transport Operator Group and Combined Authority Board to address any issues or concerns as they arise.

Title	Risk Category	Risk Owner	Risk Description	Risk Problty	Risk Cost Impact	Schedule Impact	Reputn Impact	Risk RAG	Mitigation Plan
Impact of congestion on network performance	Issue	TfWM	Growing levels of congestion and journey time reliability on the West Midlands network and the effect on the WMCA's reputation.	4	2	2	4	Red	TfWM project teams to ensure regular liaison to keep the separate initiatives aligned.
Impact of construction and development on network capacity	Issue	TfWM	The agreed programme of works for HS2, other transport network developments and commercial/housing schemes result in an unsustainable reduction in network capacity.	4	2	2	4	Red	TfWM project teams to ensure regular liaison to keep the separate initiatives aligned.
Cooperation between all stakeholder	Issue	TfWM	The need for true partnership cooperation between all key stakeholders to deliver the level and quality of scheme and project development required to meet the aspirations of politicians and others.	4	2	2	4	Red	RTCC Steering Group to continue through the development and implementation of the RTCC. TfWM to ensure close liaison between all core partners and to involve them in all the review and decision making process.
Deliverability of commitments without RTCC	Issue	TfWM	The commitments given to Commonwealth Games, HS2 and various developments across the West Midlands are currently undeliverable without the RTCC, KRN monitoring and management and other actions in the Congestion Management Plan being successfully brought forward.	4	2	2	4	Red	TfWM project teams to ensure regular liaison to keep the separate initiatives aligned.

## Appendix I7

### Non-monetarised benefits

#### Benefits overview

Twelve quantifiable/non-quantifiable benefits have been defined for the RTCC as set out in Section F4. Of these, seven were considered to be quantifiable in a way suitable for monetarisation and were used as the basis for the Cost Benefit appraisal described in Section F5. (Note that although Benefit B1 was considered to be one of the seven quantifiable benefits, it was taken into account in determining a number of the other five quantifiable benefits so was not assessed on its own to avoid double counting).

The assessment of the five non-monetarised benefits carried out in the context of the six Business Case Objectives (described in Appendix I10) and insofar as they could be directly attributable to the RTCC is summarised in this Appendix. Note that there are strategic benefits that the RTCC will contribute to realising, but the precise contribution directly attributable to the implementation of the RTCC cannot be accurately determined at this stage.

**B1 – Capability to coordinate communication to the traveling public including advice on how to avoid delays through alternative routes, methods and modes supporting a move to more sustainable journeys [quantifiable but already taken into account in assessing the other quantifiable benefits];**

**B2 – Provision of a regional coordination umbrella across core partners [quantifiable but already taken into account in assessing a number of the other quantifiable benefits];**

**B3 – Capability to provide umbrella coordination of the region’s transport networks out of UTC Centre normal operating hours [quantifiable];**

**B4 – Capability to coordinate the development of regional operational plans [non-quantifiable];**

- Indicative measureable impacts:
  - On BCO5 - Providing 24/7 proactive liaison, communication and monitoring between TfWM and Highways England to manage the impact of unplanned events on the SRN or KRN which affect parts of the other network, and on BCO6 - Maintaining and strengthening operational partnerships to support regional network coordination by:
    - Reducing congestion on the SRN or KRN resulting from an unplanned event occurring on relevant parts of the other network by an average of 15 minutes per unplanned event which occurs overnight but continues into the peak hour of the next day; and
    - Increase in usage of travel information dissemination channels supported by the RTCC (metric to be established).
- Indicative measurement method:
  - Change in travel patterns consistent with advice provided by TfWM, Highways England and other core partners for journeys on the SRN or the KRN (eg time of travel, route taken) when there are issues impacting performance of relevant parts of the other network;
  - Awareness of travel information dissemination channels supported by the RTCC (likely to be measured via customer feedback surveys); and
  - Change in use of travel information dissemination channels supported by the RTCC before and after it becomes operational (likely to be measured by change in hits on relevant pages on websites, etc).
- Timeframe for accrual – Benefits will begin to accrue as soon as the RTCC is operational.

**B5 - Capability to coordinate interventions in day-to-day network operations (based on agreed operational plans) to improve regional network performance [quantifiable but already taken into account in assessing a number of the other quantifiable benefits];**

**B6 – Capability to coordinate the development of contingency plans to mitigate the impact of unplanned events [quantifiable but already taken into account in assessing B7];**

**B7 – Capability to coordinate the regional response to unplanned events (based on agreed contingency plans) [quantifiable];**

**B8 – Capability to coordinate the development of plans to mitigate the impact of planned roadworks on regional transport networks [quantifiable];**

**B9 – Capability to coordinate with Highways England on issues impacting the performance of the SRN and the KRN [non-quantifiable];**

- Indicative measureable impacts:
  - On BCO3 - Supporting local authorities' management of the KRN through regional liaison and coordination and BCO6 - Maintaining and strengthening operational partnerships to support regional network coordination by;
    - Agreeing a baseline network performance of the SRN and the KRN with partners;
    - Monitoring the operational status of the KRN and advising appropriate partners of changes in operational status within 3 minutes of it being identified (and confirmed) by the RTCC;
    - Reducing congestion on the SRN or KRN resulting from an unplanned event occurring on relevant parts of the other network by an average of 15 minutes per unplanned event which occurs overnight but continues into the peak hour of the next day; and
    - Increase in usage of travel information dissemination channels supported by the RTCC (metric to be established);
- Indicative measurement method:
  - Change in travel patterns consistent with advice provided by TfWM, Highways England and other core partners for journeys on the SRN or the KRN (eg time of travel, route taken) when there are issues impacting performance of relevant parts of the other network;
  - Awareness of travel information dissemination channels supported by the RTCC (likely to be measured via customer feedback surveys); and
  - Change in use of travel information dissemination channels supported by the RTCC before and after it becomes operational (likely to be measured by change in hits on relevant pages on websites, etc).
- Timeframe for accrual – Benefits will begin to accrue as soon as the RTCC is operational.

**B10 – Establishment and sharing of one version of the truth across the region [non-quantifiable];**

- Indicative measureable impacts:
  - On Business Case Objective BC01 - Providing stakeholders with a real-time, common view of the operation of transport networks across the region by:
    - Reducing time to implement an agreed intervention in response to unplanned events taking place overnight by an average of 15 minutes per unplanned event;

- Reducing congestion by an average of 15 minutes per unplanned events which occurs overnight but continues into the peak hour of the next day; and
- Reduction in the time taken to identify an unplanned event with cross-boundary or regional impact and to implement measures to mitigate such an event by an average of 10 minutes.
- Indicative measurement method:
  - Time between identification of an unplanned event with cross-boundary or regional impact and mitigating actions being agreed and implemented;
  - Differences in journey time on directly comparable parts of the KRN and on directly comparable public transport routes/services before and after the RTCC becomes operational; and
  - Journey time reliability on directly comparable parts of the KRN and on directly comparable public transport routes/services before and after the RTCC becomes operational.
- Timeframe for accrual – Benefits will begin to accrue as soon as the RTCC is operational.

**B11 – Capability to coordinate the development of plans to mitigate the impact of construction works (such as HS2) on regional transport networks [non-quantifiable];**

- Indicative measureable impacts:
  - On BCO2 - Minimising the cumulative impact of infrastructure construction and maintenance on network operation by;
    - Reducing disruption caused by construction works (impact to be defined on a case-by-case basis depending on the nature, duration and location of the construction works);
    - Reducing the change in transport network performance during construction works (impact to be defined on a case-by-case basis depending on the nature, duration and location of the construction works); and
    - Increase in the use of travel information channels supported by the RTCC during construction works (impact to be defined on a case-by-case basis depending on the nature, duration and location of the construction works).
- Indicative measurement method:
  - Differences in journey time on directly comparable parts of the KRN and on directly comparable public transport routes/services before and during construction works;
  - Journey time reliability on directly comparable parts of the KRN and on directly comparable public transport routes/services before and during construction works;
  - Awareness of travel information dissemination channels supported by the RTCC (likely to be measured via customer feedback surveys);
  - Changes in public transport patronage which can be attributed to travel information and advice relating to disruption due to construction works (likely to be measured via customer feedback surveys); and
  - Change in use of travel information dissemination channels support by the RTCC before and during construction works (likely to be measured by change in hits on relevant pages on website, etc).
- Timeframe for accrual – Benefits will begin to accrue as soon as the RTCC is operational and in conjunction with construction works programmes.

**B12 – Capability to act as the transport coordination hub for major events [non-quantifiable];**

- Indicative measureable impacts:
  - On BCO4 - Improving the management of transport networks during major events by;
    - Increased use of travel information channels supported by the RTCC during events (impact to be defined based on nature and extent of specific travel information services to be implemented for major events alongside business-as-usual travel information services);
    - Change in travel patterns (eg time of travel, mode of travel, route taken) during events consistent with advice provided by TfWM and core partners (impact to be defined subject to progress of transport modelling work carried out in relation to major events); and
    - Reducing the change in transport network performance during events (impact to be defined subject to progress of transport modelling work carried out in relation to major events).
- Indicative measurement method:
  - Differences in journey time on directly comparable parts of the KRN and on directly comparable public transport routes/services before and during each event;
  - Journey time reliability on directly comparable parts of the KRN and on directly comparable public transport routes/services before and during each major event;
  - Awareness of travel information dissemination channels supported by the RTCC (likely to be measured via customer feedback surveys);
  - Change in use of travel information dissemination channels supported by the RTCC before and during each major event (likely to be measured by change in hits on relevant pages on website, etc); and
  - Increase in patronage of public transport services consistent with advice provided by TfWM and core partners.
- Timeframe for accrual – Benefits will begin to accrue as soon as the RTCC is operational and in conjunction with the timetable for each major event.

## Appendix I8

### Benefits Realisation Plan

#### Introduction

Twelve quantifiable and non-quantifiable benefits have been defined based on the proposed RTCC capabilities. These are as follows:

- B1 – Capability to coordinate communication to the traveling public including advice on how to avoid delays through alternative routes, methods and modes supporting a move to more sustainable journeys [quantifiable but already taken into account in assessing a number of the other quantifiable benefits];
- B2 – Provision of a regional coordination umbrella across core partners [quantifiable but already taken into account in assessing a number of the other quantifiable benefits];
- B3 – Capability to provide umbrella coordination of the region’s transport networks out of UTC Centre normal operating hours [quantifiable];
- B4 – Capability to coordinate the development of regional operational plans [non-quantifiable];
- B5 - Capability to coordinate interventions in day-to-day network operations (based on agreed operational plans) to improve regional network performance [quantifiable but already taken into account in assessing a number of the other quantifiable benefits];
- B6 – Capability to coordinate the development of contingency plans to mitigate the impact of unplanned events [quantifiable but already taken into account in assessing B7];
- B7 – Capability to coordinate the regional response to unplanned events (based on agreed contingency plans) [quantifiable];
- B8 – Capability to coordinate the development of plans to mitigate the impact of planned roadworks on regional transport networks [quantifiable];
- B9 – Capability to coordinate with Highways England on issues impacting the performance of the SRN and the KRN [non-quantifiable];
- B10 – Establishment and sharing of one version of the truth across the region [non-quantifiable]
- B11 – Capability to coordinate the development of plans to mitigate the impact of construction works (such as HS2) on regional transport networks [non-quantifiable]; and
- B12 – Capability to act as the transport coordination hub for major events [non-quantifiable].

#### Benefits profile

The assumed profile for the realisation of the benefits of the RTCC is set out in Appendix I2 of this Full Business Case.

#### Monitoring and evaluation

The indicative approach to monitoring and evaluation is defined in Section J of this Full Business Case.

#### Benefits RACI matrix

The following table presents the RACI (Responsible – Accountable – Consulted – Informed) matrix for the RTCC. Note that in typical RACI matrices, there is only a single accountable approver or final approving authority for each benefit. Due to the nature of some of the RTCC benefits, multiple approvers have been defined to ensure that there is appropriate ownership of each action which will lead to realisation of the benefits.

<b>Benefit</b>	<b>Responsible</b>	<b>Accountable</b>	<b>Consulted</b>	<b>Informed</b>
B1 – Capability to coordinate communication to the traveling public including advice on how to avoid delays through alternative routes, methods and modes supporting a move to more sustainable journeys [quantifiable but already taken into account in assessing a number of the other quantifiable benefits]	<ul style="list-style-type: none"> <li>TfWM responsible for ensuring the RTCC capabilities are delivered and become operational on schedule</li> </ul>	<ul style="list-style-type: none"> <li>TfWM accountable for ensuring the RTCC capabilities are delivered and become operational on schedule</li> <li>Core partners and any other organisations who commit to work with TfWM in respect of providing data to contribute to the RTCC’s one version of the truth</li> </ul>	<ul style="list-style-type: none"> <li>Core partners</li> <li>Operational partners</li> <li>Department for Transport</li> <li>Neighbouring local authorities</li> <li>Innovation partners</li> </ul>	<ul style="list-style-type: none"> <li>Public</li> </ul>
B2 – Provision of a regional coordination umbrella across core partners [quantifiable but already taken into account in assessing a number of the other quantifiable benefits]	<ul style="list-style-type: none"> <li>TfWM responsible for securing funding and establishing the RTCC capabilities</li> </ul>	<ul style="list-style-type: none"> <li>TfWM accountable for securing funding and establishing the RTCC capabilities</li> </ul>	<ul style="list-style-type: none"> <li>Core partners</li> <li>Operational partners</li> <li>Department for Transport</li> <li>Neighbouring local authorities</li> <li>Innovation partners</li> </ul>	<ul style="list-style-type: none"> <li>Public</li> </ul>
B3 – Capability to provide umbrella coordination of the region’s transport networks out of UTC Centre normal operating hours [quantifiable]	<ul style="list-style-type: none"> <li>TfWM responsible for ensuring the RTCC capabilities are provided on a 24/7 basis</li> </ul>	<ul style="list-style-type: none"> <li>TfWM accountable for delivering RTCC capabilities on a 24/7 basis</li> </ul>	<ul style="list-style-type: none"> <li>Core partners</li> <li>Operational partners</li> <li>Department for Transport</li> <li>Neighbouring local authorities</li> </ul>	<ul style="list-style-type: none"> <li>Innovation partners</li> </ul>
B4 – Capability to coordinate the development of regional operational plans [non-quantifiable]	<ul style="list-style-type: none"> <li>TfWM and core partners will work together to develop effective regional operational plans</li> </ul>	<ul style="list-style-type: none"> <li>TfWM accountable for delivery of RTCC capabilities</li> <li>Core partners accountable for integrating RTCC capabilities into their business-as-usual operations as appropriate to realise the benefit for regional transport network management</li> </ul>	<ul style="list-style-type: none"> <li>Core partners</li> <li>Operational partners</li> <li>Department for Transport</li> <li>Neighbouring local authorities</li> </ul>	<ul style="list-style-type: none"> <li>Innovation partners</li> </ul>
B5 - Capability to coordinate interventions in day-to-day network operations (based on agreed operational plans) to improve regional network performance [quantifiable but already taken into account in	<ul style="list-style-type: none"> <li>TfWM responsible for delivery of RTCC umbrella coordination capabilities</li> <li>Core partners responsible for working with RTCC to integrate operational plans into their</li> </ul>	<ul style="list-style-type: none"> <li>TfWM accountable for delivery of RTCC capabilities</li> <li>Core partners accountable for integrating RTCC operational intervention capabilities into their business-as-usual operations as appropriate to realise the</li> </ul>	<ul style="list-style-type: none"> <li>Core partners</li> <li>Operational partners</li> <li>Department for Transport</li> <li>Neighbouring local authorities</li> </ul>	<ul style="list-style-type: none"> <li>Public</li> <li>Innovation partners</li> </ul>

<b>Benefit</b>	<b>Responsible</b>	<b>Accountable</b>	<b>Consulted</b>	<b>Informed</b>
assessing a number of the other quantifiable benefits]	business-as-usual operations as appropriate	benefit for regional transport network management		
B6 – Capability to coordinate the development of contingency plans to mitigate the impact of unplanned events [quantifiable but already taken into account in assessing B7]	<ul style="list-style-type: none"> <li>TfWM and core partners will work together to develop effective contingency plans for unplanned events</li> </ul>	<ul style="list-style-type: none"> <li>TfWM accountable for delivery of RTCC capabilities</li> <li>Core partners accountable for integrating RTCC capabilities into their business-as-usual operations as appropriate to realise the benefit for regional transport network management</li> </ul>	<ul style="list-style-type: none"> <li>Core partners</li> <li>Operational partners</li> <li>Department for Transport</li> <li>Neighbouring local authorities</li> <li>Fire and Rescue Service</li> <li>Ambulance Service</li> </ul>	<ul style="list-style-type: none"> <li>Innovation partners</li> </ul>
B7 – Capability to coordinate the regional response to unplanned events (based on agreed contingency plans) [quantifiable]	<ul style="list-style-type: none"> <li>TfWM responsible for delivery of RTCC umbrella coordination capabilities</li> <li>Core partners responsible for working with RTCC to integrate response plans into their business-as-usual operations as appropriate</li> </ul>	<ul style="list-style-type: none"> <li>TfWM accountable for delivery of RTCC capabilities</li> <li>Core partners accountable for integrating RTCC response coordination capabilities into their business-as-usual operations as appropriate to realise the benefit for regional transport network management</li> </ul>	<ul style="list-style-type: none"> <li>Any core partners not involved in planning for a specific unplanned event</li> <li>Fire and Rescue Service</li> <li>Ambulance Service</li> </ul>	<ul style="list-style-type: none"> <li>Public</li> <li>Innovation partners</li> </ul>
B8 – Capability to coordinate the development of plans to mitigate the impact of planned roadworks on regional transport networks [quantifiable]	<ul style="list-style-type: none"> <li>TfWM, core partners and operational partners will work together to develop effective plans to mitigate the impact of roadworks</li> <li>Client authorities/companies and contractors responsible for coordinating with RTCC and core partners to support the development of plans to mitigate the impact of roadworks</li> </ul>	<ul style="list-style-type: none"> <li>TfWM accountable for delivery of RTCC capabilities</li> <li>Core partners accountable for integrating RTCC roadwork mitigation capabilities into their business-as-usual operations as appropriate to realise the benefit for regional transport network management</li> <li>client authorities/companies and Contractors responsible for coordinating with RTCC and core partners to support plans to mitigate the impact of roadworks</li> </ul>	<ul style="list-style-type: none"> <li>Client authorities/companies and contractors</li> <li>Core partners</li> <li>Operational partners</li> </ul>	<ul style="list-style-type: none"> <li>Public</li> <li>Innovation partners</li> </ul>
B9 – Capability to coordinate with Highways England on issues impacting the performance of the SRN and the KRN [non-quantifiable]	<ul style="list-style-type: none"> <li>TfWM and Highways England responsible for coordinating on issues impacting the SRN and KRN and for advising core partners of the issues and their wider impacts</li> </ul>	<ul style="list-style-type: none"> <li>TfWM and Highways England accountable for delivering a coordinated view of issues on the SRN and KRN to core partners</li> </ul>	<ul style="list-style-type: none"> <li>Core partners</li> <li>Operational partners</li> <li>Department for Transport</li> <li>Neighbouring local authorities</li> </ul>	<ul style="list-style-type: none"> <li>Public</li> <li>Innovation partners</li> </ul>
B10 – Establishment and sharing of one version of the	<ul style="list-style-type: none"> <li>TfWM responsible for delivering the RTCC's capability to provide one</li> </ul>	<ul style="list-style-type: none"> <li>TfWM accountable for delivering the regional common operating picture</li> </ul>	<ul style="list-style-type: none"> <li>Core partners</li> <li>Operational partners</li> <li>Department for Transport</li> </ul>	<ul style="list-style-type: none"> <li>Public</li> <li>Innovation partners</li> </ul>

<b>Benefit</b>	<b>Responsible</b>	<b>Accountable</b>	<b>Consulted</b>	<b>Informed</b>
truth across the Region [non-quantifiable]	<p>version of the truth across the Region</p> <ul style="list-style-type: none"> <li>• Core partners responsible for sharing information to with RTCC to inform the regional common operating picture and for integrating its into their business-as-usual operations</li> </ul>	<ul style="list-style-type: none"> <li>• Core partners accountable for sharing information to with RTCC to inform the regional common operating picture</li> </ul>	<ul style="list-style-type: none"> <li>• Neighbouring local authorities</li> </ul>	
B11 – Capability to coordinate the development of plans to mitigate the impact of construction works (such as HS2) on regional transport networks [non-quantifiable]	<ul style="list-style-type: none"> <li>• TfWM, core partners and operational partners will work together to develop effective plans to mitigate the impact of major construction projects</li> <li>• Project sponsors and contractors responsible for coordinating with RTCC and core partners to support the development of plans to mitigate the impact of major construction projects</li> </ul>	<ul style="list-style-type: none"> <li>• TfWM accountable for delivery of RTCC capabilities and implementing plans to mitigate the impact of major construction projects</li> <li>• Core partners accountable for implementing plans to mitigate the impact of major construction projects into their business-as-usual operations as appropriate to realise the benefit for regional transport network management</li> </ul>	<ul style="list-style-type: none"> <li>• Major project sponsors and contractors</li> <li>• Core partners</li> <li>• Operational partners</li> </ul>	<ul style="list-style-type: none"> <li>• Public</li> <li>• Innovation partners</li> </ul>
B12 – Capability to act as the transport coordination hub for major events [non-quantifiable]	<ul style="list-style-type: none"> <li>• TfWM responsible for ensuring the RTCC can be a transport coordination hub for major events Depending on the nature of each major event, core partners will be responsible for working with the RTCC to plan for and to support the operation of the RTCC as a transport coordination hub for major events</li> <li>• Other stakeholders involved in each major event will have different degrees of responsibility for supporting the RTCC as a transport coordination hub</li> </ul>	<ul style="list-style-type: none"> <li>• TfWM accountable for ensuring the RTCC can be a transport coordination hub for major events</li> </ul>	<ul style="list-style-type: none"> <li>• Any core partners not involved in any one specific major event</li> <li>• Operational partners</li> <li>• Department for Transport</li> <li>• Neighbouring local authorities</li> </ul>	<ul style="list-style-type: none"> <li>• Public</li> <li>• Innovation partners</li> </ul>

## Appendix I9

### Summary of Deliverable 1 - Preliminary Strategic Case

The West Midlands Combined Authority has set out an ambitious programme to transform the economic and social fortunes of the region over the next 15 years. This includes rapid growth in population, jobs and housing, resulting in improved earnings, social and physical well-being and economic performance of the region. The strategy is based on the traditional and advanced manufacturing industries of the region and its physical location in the centre of the UK. These advantages are enhanced by the advent of HS2, opening in 2026 with two new West Midlands stations in Birmingham City Centre and at UK Central, adjacent to the NEC and Birmingham International Airport and also by the rejuvenation of the UK automotive industry, including connected and autonomous vehicles, centred on East Coventry and in the centre of the region.

Transport is a key enabler to facilitate this growth, including the construction of HS2, improvements to the Strategic Road Network and the existing rail network and regional enhancements to the public transport, road and walking/cycling networks. These enhancements will enable improved mobility within and across the region and also to and from neighbouring authorities and finally for traffic passing through the region on the national networks.

Currently much of the road and public transport network in the region is operating at capacity during peak periods, and if nothing changes the increased demands on the network from the rise in population and business will result in even more congestion, more unreliable journeys for workers and businesses and increased levels of harmful emissions, which are already frequently above safe target levels. To add to these challenges, it is estimated that transport and development construction work may reduce existing network capacity by up to 25% in key locations during the period of the works.

This study examined how this situation could be addressed by improving regional coordination and overview capabilities through the establishment of a RTCC. A number of potential options for providing such a facility were identified together with range of functional and operational capabilities. The proposed RTCC will be designed to assist in:

- Reducing the impacts resulting from current and future traffic conditions;
- Supporting the region's wider economic and transport policy ambitions;
- Addressing the need to manage reputational risk; and
- Correcting the effects of chronic underinvestment in local transport management capabilities and operations.

The scope of the RTCC was set out in the form of an Operational Model, developed following extensive stakeholder consultations. The overall operational model for the RTCC comprised the following elements, including:

- Vision – the high level goals of the RTCC;
- Operational Philosophy – the approach to the non-technical aspects of RTCC operations, e.g. policy, leadership;
- Functional Scope – the activities the RTCC will perform;
- Organisational Scope – the bodies involved in delivering the functions; and
- Operational Capabilities/Services – the capability the RTCC will need in order to deliver the functions described in terms of provision of specific services.

Deliverable 2 used this output from Deliverable 1 as a basis for defining the transport objectives that will solve the problems identified in the Strategic Case and verifies and expanded on the long list of options identified in the SOBC which could meet the transport objectives.

Deliverable 1 is available for review via TfWM.

## Appendix I10

### Summary of Deliverable 2 - Objectives and Long List of Options

Deliverable 2 defined the transport objectives that will solve the problems identified in the Strategic Case (Deliverable 1). It also verified the list of options identified in the SOBC which could meet the transport objectives and expanded on the verified SOBC options to define a long list of options for further consideration.

The derivation of the transport objectives was based on the over-arching longer-term objectives set out in the SOBC. These were translated into a number of specific “Business Case Objectives”, each defined using SMART approach – specific, measurable, achievable, realistic, time-limited – in accordance with the HM Treasury’s Green Book. Six Business Case Objectives were defined as follows:

- BCO1 - Providing stakeholders with a real-time, common view of the operation of transport networks across the region;
- BCO2 - Minimising the cumulative impact of infrastructure construction and maintenance on network operation;
- BCO3 - Supporting local authorities’ management of the West Midlands Key Route Network (KRN) through regional liaison and coordination;
- BCO4 - Improving the management of transport networks during major events;
- BCO5 - Providing 24/7 proactive liaison, communication and monitoring between stakeholders to manage the impacts of unplanned events affecting the transport network; and
- BCO6 - Maintaining and strengthening operational partnerships to support regional network coordination.

Using these Business Case Objectives and the five options for the RTCC defined in the SOBC, an expanded long list of options was defined using a process adapted from the Green Book’s Options Framework. Seven long list options were defined as follows:

- Long List Option 1 – Do nothing;
- Long List Option 2 – Operational liaison;
- Long List Option 3 – Operational liaison, coordination and support;
- Long List Option 4a, b, c – Coordinating major planned events;
- Long List Option 5a, b, c – 24/7 incident management and coordination (i.e. emergency services co-located in RTCC on an as-needed basis);
- Long List Option 6a, b, c – 24/7 incident control (i.e. control of transport networks from RTCC, emergency services embedded in RTCC); and
- Long List Option 7 – Centralised management and control from RTCC.

Using both the Green Book Critical Success Factors and the WebTag Early Assessment and Sifting Tool process, the long list of options was assessed in order to produce a short list of options for detailed consideration. This analysis was documented in Deliverable 2a.

Deliverable 2 is available for review via TfWM.

## **Appendix I11**

### **Summary of Deliverable 2a - Initial Sifting of the Options**

Deliverable 2 set out how the over-arching longer-term objectives defined in the SOBC were translated into a number of specific “Business Case Objectives” using SMART approach – specific, measurable, achievable, realistic, time-limited – consistent with the HM Treasury’s Green Book.

Using the Business Case Objectives and the five options for the RTCC defined in the SOBC, Deliverable 2 also set out an expanded long list of seven options defined using a process adapted from the HMT Green Book’s Options Framework.

Deliverable 2a described how these seven long list options were reduced to a short list of three options for detailed consideration using the Green Book Critical Success Factors and the WebTag Early Assessment and Sifting Tool processes. The three short-listed options were as follows:

- Short List Option A (Long List Option 1) – Do nothing;
- Short List Option B (Long List Option 3) – Operational liaison, coordination and support; and
- Short List Option C (Long List Option 6) – Major planned event and 24/7 incident coordination and management (i.e. coordination and management of transport networks from RTCC, emergency services embedded in RTCC).

The detailed assessment of these three shortlisted options was documented in Deliverable 3.

Deliverable 2a is available for review via TfWM.

## Appendix I12

### Summary of Deliverable 3 – Preferred Option

#### Introduction

Deliverable 3 provided a synopsis of the costs and benefits of the three shortlisted options set out in Deliverable 2a. It used these to make a recommendation for a preferred option to be funded to deliver the benefits of the RTCC.

#### Costs

In order to define the costs in a consistent manner, sixteen cost categories were defined. The costs in each Cost Category were assessed for Option 3 and 6 based on guidance from the HMT Green Book and using a contingency of 25% for capital costs and 15% revenue costs to account for pre-design uncertainties and risk mitigation. (The costs for Option 1 were not assessed as this option represents the “Do Nothing” scenario so there would be no appreciable additional costs arising). The ten-year costs for Option 3 and 6 are summarised below:

<b>Option 3</b>		
	Capital	Revenue
Total (£M, actual prices)	£20.73	£9.72
Total (£M, PV prices)	£19.76	£8.17
<b>Total cost (£M, PV prices)</b>	<b>£27.93</b>	
<b>Option 6</b>		
	Capital	Revenue
Total (£M, actual prices)	£21.53	£10.75
Total (£M, PV prices)	£20.54	£9.05
<b>Total cost (£M, PV prices)</b>	<b>£29.59</b>	

Optimism bias was applied as part of the appraisal of the options using HMT Green Book guidance. Optimism bias applied for capital costs was 41% and for revenue costs, was 25%. The same optimism bias was applied to both options under consideration. Given the commonalities between the options, the application of optimism bias had limited impact on relative weightings of each option. Both were considered to be within the affordability envelope of costs increased up to the ceiling defined by the application of optimism bias.

#### Benefits

Twelve quantifiable/non-quantifiable benefit categories were identified for the RTCC. The benefits in each Benefit Category were assessed for Option 3 and 6 for the period 2019/20 to 2028/29.

A summary of seven quantifiable benefits for each option is shown below.

Option	Total coordination Benefits (non-profiled) (£M, actual prices)	Realised(profiled) benefits (£M, actual prices)	Realised (profiled) benefits (£M, PV prices)
3	£166.23	£143.83	£119.86
6	£345.49	£283.17	£234.15

These benefits were profiled for each option to give a more realistic assessment of when they will actually accrue given a planned opening date for the RTCC of December 2019.

In addition to the seven quantifiable benefits, the five non-quantifiable impacts were assessed and a Benefits Realisation Plan prepared.

**Benefit : cost assessment**

On the basis of the assessment of the costs and benefits for each of the options under consideration, the following conclusions were made. These conclusions were based on present value prices for all costs and benefits to allow for a fair comparison.

Option	Present Value Costs (£M)	Present Value Benefits (£M)	BCR
Option 3	£27.93	£119.86	4 : 1
Option 6	£29.59	£234.15	7 : 1

**Preferred option**

On the basis of the outcome of the cost and benefit appraisal, **Short List Option 6** – “Major planned event and 24/7 incident coordination (i.e. coordinating the management of transport networks from RTCC, emergency services embedded in RTCC”) is recommended as the preferred option for the RTCC.

Deliverable 3 is available for review via TfWM.

## **Appendix I13**

### **Indicative logic model for the Monitoring and Evaluation Plan**

The following table sets out the indicative Logic Model for the RTCC.

This will be refined and expanded on in the Monitoring and Evaluation Plan to be developed during the detailed design phase.

Inputs	Activities	Outputs	Outcomes
<p>National transport strategies</p> <p>Regional transport strategies</p> <p>Core partner's transport strategies</p> <p>Inputs from core partners</p> <p>Data from enhanced UTC systems and other ITS infrastructure</p> <p>Real-time engagement</p>	<p>Developing a common operating picture of transport networks across the region</p>	<p>Sharing knowledge on transport network status with core partners and others</p>	<p>Consistent travel information disseminated to travellers</p> <p>Better informed travellers with access to more reliable and accurate travel information</p>
	<p>Monitoring transport networks across the region</p>		
	<p>Identifying any disruptions to transport networks including unplanned events</p>	<p>Enhanced overview of network performance</p>	<p>Travellers have ready access to all information necessary to make informed travel choices on time, route and mode of their journeys</p>
	<p>Coordinating operational planning with core partners</p>	<p>Early alerts to core partners (and others) relating to any issues or disruption affecting the transport network</p>	
	<p>Coordinating the implementation of operational plans</p>	<p>Regional operational plans focusing specifically on regional and cross-boundary issues</p>	<p>Early sight of any disruptions to transport networks and alerting core partners (and others) to allow early interventions to be made</p>
		<p>Improvements to the implementation of agreed operational plans focusing specifically on regional and cross-boundary issues</p>	

Inputs	Activities	Outputs	Outcomes
with core partners (and others)	Coordinating development of plans to respond to unplanned events	Regional plans to respond to unplanned events focusing specifically on regional and cross-boundary issues	<p>Optimised use of core partners' resources to address disruptions to the transport network</p> <p>Impact of roadworks, construction works and unplanned events on the rest of the transport network and on travellers is minimised</p> <p>Journey times across the region are more reliable</p> <p>Improved reporting on transport network performance to allow informed decisions on operational improvements to be made</p> <p>Continuous improvement of plans based on evaluation and</p>
	Coordinating the implementation of plans to respond to unplanned events	Improvements to the implementation of responses to unplanned events focusing specifically on regional and cross-boundary issues	
	Coordinating development of plans to mitigate the impacts of roadworks with core partners	Regional plans to mitigate the impact of roadworks focusing specifically on regional and cross-boundary issues	
	Coordinating the implementation of plans to mitigate the impact of roadworks	Improvements to the implementation of agreed plans to mitigate the effect of roadworks focusing specifically on regional and cross-boundary issues	
	Coordinating development of plans to mitigate the impacts of major construction works with core partners	Regional plans to mitigate the effect of major construction works	
	Coordinating the implementation of plans to mitigate the impact of major construction works	Improvements to the implementation of agreed plans to mitigate the impact of major construction works	

Inputs	Activities	Outputs	Outcomes
	Acting as a Regional Transport Coordination Hub for major events	A fully-equipped facility set up to act to coordinate transport across the region during major events	feedback to optimise future responses
	Reporting on network performance	Comprehensive reports on network performance to inform a range of stakeholders, political leaders and the public	Single facility set up to coordinate of transport during major events
	Evaluation of network performance and response plans	Information to be used to optimise business-as-usual operations and response plans	
	Providing feedback for refinement and improvements of operations	Better trained transport professionals	
	Training operators and future transport professionals in a real-world environment	A Skills Academy which will be recognised as a Centre of Excellence for operational training	

## Monitoring and Evaluation Plan

### Section J: Monitoring and Evaluation Plan

**26. Please outline your proposed monitoring and evaluation arrangements to assess whether the project is on track to achieving its objectives and outputs, and to check to what extent the actual costs/benefits are matching the expected costs/benefits.**

A detailed Monitoring and Evaluation Plan will be prepared once the detailed design of the RTCC has been undertaken and can inform the precise scope and nature of the monitoring and evaluation activities required. For the purposes of this FBC, an indication of what is anticipated to be included within the Monitoring and Evaluation Plan is set out below.

#### **Logic model or impact pathway**

An indicative logic model is set out in Appendix I13. This will be refined and expanded on in the Monitoring and Evaluation Plan to be developed during the detailed design phase.

#### **Key metrics on actual costs and benefits**

Proposed metrics to be used to assess the non-monetarised benefits are set out in Appendix I7. Monetarised benefits will be assessed using the principles set out in Deliverable 3 (Appendix I12).

The Monitoring and Evaluation Plan to be developed during the detailed design phase will set out all metrics, measurement methods and recording tools to be used to carry out these assessments.

#### **Frequency of data collection**

The frequency and methods for collecting data to be used to assess the impact of the RTCC will be defined in detail in the Monitoring and Evaluation Plan.

The nature of some of the benefits accrued through the implementation and operation of the RTCC will require a “before implementation” and “after implementation” analysis. In order to do this, baseline data derived from current operations will be required. Gathering this data will need to be undertaken before the RTCC is fully operational in December 2019. The process for gathering this baseline data will be defined in the Monitoring and Evaluation Plan.

#### **Feedback loops/continuous improvement**

The Monitoring and Evaluation Plan will include a regular review and assessment of how the evaluation is proceeding so that lessons learnt as the RTCC begins operation can be incorporated. This review and assessment process will include:

- Regular review of outcomes by members of staff independent from the implementation and operation of the RTCC;
- Regular reporting of evaluation outcomes to senior staff at TfWM and core partners;
- Periodic cross-referencing of the measured outcomes to the expected outcomes of the initiative with an assessment of the basis for any significant differences; and
- Recommendations for change to improve the benefits being realised from the initiative.

#### **Ownership of the M&E**

TfWM will own the Monitoring and Evaluation Plan and will be responsible for ensuring it is implemented as agreed and that the outcomes are reported and fed back into the RTCC operation to maximise the benefits accrued.

## Appendix I14

### Calculation of benefits

#### Benefits

The RTCC impacts come from improved planning, co-ordination and management of the transport network, principally the road network. However, the RTCC is not directly responsible for operating the transport network so it realises its benefits through improving the effectiveness of the operational partners who do directly control or influence the behaviour of the travelling public. Because the RTCC acts at “one remove” this makes attribution of benefits difficult because the link between cause and effect is indirect. The difference between “advise” and “direct” will change the magnitude of any impact because advice may only be followed partially or not at all by the operational partners involved.

The sources of quantifiable benefits are changes in societal costs in the area of safety, improvements in public health or the environment and reduction of lost travel time through congestion. In respect of the first three elements the connection between cause and effect is not certain and hence it is inappropriate to try and allocate benefits in these areas to the RTCC, although we can expect the actions of the RTCC to have some impact on these areas.

We think it is possible to make a reasonable estimate of the impact on the RTCC on congestion caused by unplanned events and roadworks. The method we have used is set out below and is based on results reported in the literature, DfT statistics and monetary values and our professional judgement on the assumptions. Clearly the values calculated are estimates of the potential magnitude of the benefits and need to be treated with some level of caution. However, it does allow the economic value of the RTCC to be assessed alongside the substantial qualitative benefits identified elsewhere.

#### **B7 – Capability to coordinate the regional response to unplanned events (based on agreed contingency plans) [quantifiable]**

Unplanned events comprise road traffic accidents and other unforeseen occurrences that reduce the road capacity at some point, e.g. broken down vehicle, illegal parking and emergency access to a non-transport incident.

The size of the impact on traffic of an unplanned event depends on the amount of capacity lost, the time of day and the duration of the incident, i.e. the time from the incident occurring to traffic returning to its normal pattern for that time of day.

Research into the impact of a loss of capacity by Jeihani (2015)<sup>12</sup> using simulation models shows that congestion increases with both incident duration and with traffic intensity, the ratio between traffic demand and the road capacity. As demand reaches capacity the delay starts to increase exponentially and this in turn impacts on the time for traffic to return to normal.

A study in the Netherlands (Adler 2013<sup>13</sup>) examined highway incidents from five types of road service providers (i.e. incident management organisations, towing companies, medical response teams,

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<sup>12</sup> Traffic recovery time estimation under different flow regimes in traffic simulation, Mansoureh Jeihani\*, Petronella James, Anthony A. Saka, Anam Ardeshiri, Department of Transportation and Urban Infrastructure Studies, Morgan State University, Baltimore, MD 21251, USA Journal of Traffic and Transportation Engineering (English Edition) Volume 2, Issue 5, October 2015, Pages 291-300

<sup>13</sup> Road Congestion and Incident Duration, Martin W. Adler, Jos van Ommeren and Piet Rietveld, Faculty of Economics and Business Administration, VU University Amsterdam, and Tinbergen Institute, TI 2013-089/VIII

police and fire departments) for the years 2007 to 2009 for the entire country. From this they identified a set of more than 9000 incidents where details of incident duration and levels of congestion were known. The average incident duration was found to be around 47 minutes although the distribution is skewed and durations up to 100 minutes were common. Accident and non-accident incidents had a similar average duration.

The Dutch study outcome was an estimate of the cost of each minute of congestion of 3 x the hourly value of time for a vehicle (VoT) at locations and times where recurrent congestion was not present, and 25 x VoT when there was recurrent traffic congestion, i.e. the road was usually congested even when no incident was present.

WebTAG gives a value of time of £13.87 per vehicle hour at 2010 prices<sup>14</sup>.

Using data from TAG data book May 18, Table A 1.3.6: Market Price Values of Time per Vehicle based on distance travelled (£ per hour, 2010 prices) we can estimate the future VoT for the business case evaluation period as shown in the Figure I14.1.

Using the Values from Adler 2013 we can then calculate a value for each minute of congestion for peak periods when recurrent congestion is present and inter-peak and weekend daytime periods when there is not usual congestion but traffic intensity is such that an incident is likely to result in some congestion. The right hand columns in Figure I14.1 give these values.

Year	VOT Weekdays Work 7:00 - 10:00	Ratio to 2010	Average VOT at 2010 prices	Peak hour cost per minute of incident congestion (factor = 25, 2010 prices)	Inter-peak and daytime weekend cost per minute of congestion (factor = 3, 2010 prices)
2010	20.00		£13.87		
2019/20	22.19	1.109508808	£15.39	£384.72	£46.17
2020/21	22.35	1.117343144	£15.50	£387.44	£46.49
2021/22	22.53	1.126472815	£15.62	£390.60	£46.87
2022/23	22.74	1.137019969	£15.77	£394.26	£47.31
2023/24	23.00	1.150048993	£15.95	£398.78	£47.85
2024/25	23.29	1.164703827	£16.15	£403.86	£48.46
2025/26	23.63	1.181268131	£16.38	£409.60	£49.15
2026/27	23.99	1.199516692	£16.64	£415.93	£49.91
2027/28	24.39	1.219378403	£16.91	£422.82	£50.74
2028/29	24.82	1.240818161	£17.21	£430.25	£51.63
2019/20	25.26	1.263213905	£17.52	£438.02	£52.56
2030	25.74	1.287207569	£17.85	£446.34	£53.56

**Figure I14.1 Estimate of Average VoT for 2019/20-2028/29**

From STATS19 we know that there were 5392 fatal and injury (all severity) accidents in the West Midlands region in 2016.

Tinbergen Institute Discussion Paper. <http://www.ieb.ub.edu/files/van%20Ommeren,%20Jos.pdf>  
 14 Values of Time and Vehicle Operating Costs, TAG Unit 3.5.6, para 2.5.8, January 2014, Department for Transport Analysis Guidance (TAG).

Figure I14.2 shows the split between different times of day and between weekend and weekday in terms of percentage.

Time Period	KSI Incidents (from Stats 19)	%	Weekday	%	Weekend
Overnight	1045	19%	671	12%	374
Pre-peak	282	5%	246	5%	36
Morning peak	601	11%	527	10%	74
Inter-peak	1823	34%	1374	25%	449
Evening peak	893	17%	720	13%	173
Post-peak	748	14%	564	10%	184
	<b>5392</b>		<b>4102</b>		<b>1290</b>

**Figure I14.2 Accident data by time of day for West Midlands region**

We assume that all fatal and injury accidents caused some congestion.

We assume that the number of unplanned events causing congestion is 5 times the number of fatal and injury accidents. This allows us to take into account damage only accidents, broken down vehicles, illegal parking or loading and non-traffic related incidents that affect the roads. This gives a total of 26,690 unplanned events where the RTCC can have an effect. This is a very conservative estimate. A 2011<sup>15</sup> report estimates that there were 2.3 million damage-only accidents compared to 151,474 reported injury accidents, a ratio of more than 15:1. Many of these may not be on the road (e.g. in a car park) and many may be resolved very quickly with minimal effect on the traffic. In the light of this a factor of 3 to take into account unreported unplanned events can be seen as a very conservative approach.

Department for Transport data<sup>16</sup> indicates that the long term trend on accidents has been down, with a decrease rate of around 1.85% from 2016. Trends in other types of unplanned events are unknown. However, recent data suggest this long term trend has stalled and at the same time the volume of traffic is growing. As unplanned incidents generally increase linearly with traffic growth and traffic is expected to grow by 46% by 2040<sup>17</sup>, an annual growth of 1.5%, we have assumed that unplanned incidents will grow at the same rate.

We assume that improved co-ordination (i.e. the RTCC provides advice to operational partners) will reduce the congestion for events by 4 minutes on average. Co-ordination will take place on a wide range of events. The actual impact will vary and the distribution of impacts is likely to be highly skewed with minimal impact on a lot of events and a significant contribution to a small number. This will give a small average effect.

The benefit of improved co-ordination is calculated from the proportion of unplanned events in the peak hours multiplied by the peak hour cost from table 1 (adjusted to 2018 prices using the ONS values for inflation) plus the proportion of unplanned events in the inter-peak and during daytime at weekend multiplied by the inter-peak cost from table 1 (adjusted to 2018 prices), all multiplied by the average number of minutes that congestion has been reduced by.

<sup>15</sup> Reported Road Casualties in Great Britain: 2011 Annual Report, A valuation of road accidents and casualties in Great Britain in 2011, Department for Transport,

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/9275/rrcgb2011-02.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/9275/rrcgb2011-02.pdf)

<sup>16</sup> RAS40007, Reported road accidents and casualties, Great Britain, 1950-2016,

<https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-annual-report-2016>

<sup>17</sup> MOVEMENT FOR GROWTH:2026 Delivery Plan for Transport

For example:

	Year	2023
a	Number of injury accidents in 2016	5392
b	Ppn of injury accidents in peak hours	23.13%
c	Ppn of injury accidents in inter-peak and daytime weekend hours	27.69%
d	Number of unplanned events in peak hours = $5 \times a \times b \times (1.015)^7$	6920
e	Number of unplanned events in inter-peak and daytime weekend hours =	8285
	$5 \times a \times c \times (1.015)^7$	
f	Peak hour cost per minute of incident congestion (factor = 25, 2010 prices)	£398.78
g	Inter-peak and daytime weekend cost per minute of congestion (factor = 3, 2010 prices)	£47.85
h	Average number of minutes congestion reduced per event	4
i	Factor to adjust to 2018 prices from ONS inflation data	1.25
	Benefit (2010 prices) = $(d \times f) + (e \times g) \times h \times i$	£15.78M

This represents the benefits for Option 3 for unplanned events in 2023 (at 2019/20 prices).

Intervention is likely to have a substantial impact but only on a proportion of the events and not all of them. We assume that pro-active intervention (i.e. the RTCC decides on course of action and instructs operational partners) will reduce the congestion for around 20% of peak hour unplanned events by 20 minutes on average and around 20% of inter-peak and weekend unplanned events by 15 minutes on average. We consider this a conservative estimate of this percentage. The benefits of intervention are additional to the benefits from improved co-ordination.

The benefit of improved intervention is calculated from the number of unplanned events in the peak hours where intervention has an impact multiplied by the peak hour cost from table 1 (adjusted to 2018 prices using the ONS values for inflation) multiplied by the average number of minutes reduction in congestion plus the number of unplanned events in the inter-peak and during daytime at weekend where intervention has an impact multiplied by the inter-peak cost from table 1 (adjusted to 2018 prices) multiplied by the average number of minutes that congestion has been reduced by.

For example:

	Year	2023
a	Number of injury accidents	5392
b	Ppn of injury accidents in peak hours	23.13%
c	Ppn of injury accidents in inter-peak and daytime weekend hours	52.93%
d	Number of unplanned events in peak hours = $5 \times a \times b \times (1.015)^7$	6920
e	Number of unplanned events in inter-peak and daytime weekend hours =	15837
	$5 \times a \times c \times (1.015)^7$	
f	Number of unplanned events in peak hours where intervention has impact = $0.2 \times d$	1384
g	Number of unplanned events in inter-peak and daytime weekend hours where intervention has impact = $0.2 \times e$	3167

h	Peak hour cost per minute of incident congestion (factor = 25, 2010 prices)	£398.78
i	Inter-peak and daytime weekend cost per minute of congestion (factor = 3, 2010 prices)	£47.85
j	Average number of minutes congestion reduced in peak hours	20
k	Average number of minutes congestion reduced in inter-peak and daytime weekend hours	15
l	Factor to adjust to 2018 prices from ONS inflation data	1.25
	Benefit of intervention at 2018 prices = ((f x h x j) + (g x i x k)) x l	£16.64M

This is added to the benefit of co-ordination calculated for Option 3 to give the benefit from Option 6 for unplanned events. For this example that estimates a total benefit in respect of unplanned events of £32.90M in 2023 at 2019/20 prices.

### **B8 – Capability to coordinate the development of plans to mitigate the impact of planned roadworks on regional transport networks [quantifiable]**

Roadworks reduce the capacity of the network each day they are in place. Overnight roadworks do not usually cause congestion, although closures can cause increased journey times because of the diversion route being longer. However, this is very difficult to quantify.

Major roadworks that are in place for days or weeks on-end cause congestion in both the peak and interpeak hours, and if they involve signal controlled two-way working may cause delay at all times.

The Department for Transport has established a cost per day for roadworks by utilities as a result of a study that was published in 2004<sup>18</sup>. Volume 3 of the report contains the table 3 that relates AADT and length of works to a cost per day of disruption. Volume 2, table 13 of the same report also gives an estimate of the average duration of roadworks as six days although the distribution is highly skewed with a large number only lasting a day and a few roadworks lasting for months. In order to gain an estimate of the number of roadworks days for the West Midlands region we have examined the roadworks data displayed via ELGIN for Coventry for June to September 2018. This includes highway based works as well as works by utilities.

Urban		10m	50m	100m	200m
Reinstatement category	Typical AADT flow				
0=5	40,000	£25,000	£25,000	£25,000	£25,000
1	24,000	£9,000	£12,000	£15,000	£17,000
2	16,000	£3,450	£5,150	£7,000	£8,800
3	10,000	£385	£535	£710	£1,025
4	6,000	£200	£280	£375	£550

**Figure I14.3 Extract from DfT report vol3, table 5 at 2004 prices**

Using the data from in ELGIN there were 88,423 roadwork-days in a 12 month period from June 2017 to May 2018 on the KRN and 529,902 roadwork-days on other roads.

<sup>18</sup> Assessing the extent of Street Works and monitoring the effectiveness of Section 74 in reducing disruption, Department for Transport, July 2004, <https://www.gov.uk/government/publications/extent-of-road-works-and-monitoring-disruption>

The DfT report estimated that there were on average 520,000 roadwork-days each month, across England, based on April 2001 to Mar 2004, yielding an annual figure of 6,240,000 roadwork-days in 2003. Given the size of the West Midlands, and that our estimate includes highways works as well as utilities, the figure of 10% of the national value seems consistent.

Using the KRN baseline studies to determine the AADT and combining it with the values for 10m length of works in Figure I14.3, we estimate a weighted value, based on the relative length of each route, for the daily cost of roadworks of £6,815 at 2004 prices. Bringing this up to 2018 prices using ONS inflation data gives an estimated daily cost value of £9,677. The data is shown in Figure I14.4.

Better planning of roadworks can be used to combine works to reduce the number of roadwork-days. Improved monitoring can identify where works are not being completed right first time and hence additional roadwork-days are required for remedial works.

In our view it is reasonable to assume that improved co-ordination of roadworks planning (Option 3) will save 50 roadwork-days per year. With more proactive management in roadworks planning and monitoring (Option 6) this will rise to 150 roadwork-days per year, i.e. management reduces the number of roadwork-days by an additional 100 over co-ordination. These numbers are very conservative when set against the estimated range of 18,396 to 99,645 roadwork days for the West Midlands.

Hence, Option 3 may provide a benefit of £0.48M per annum in respect of roadworks (at 2018 prices) and Option 6 a further benefit of £0.97M per annum (at 2018 prices).

We have assumed that the number of roadworks and average duration remain constant. This is a conservative approach as large scale projects such as HS2 will impact on the road network. Also, we have not attempted to adjust the daily cost value for changes in the value of time as we have done for unplanned events. This will make this a conservative estimate.

Route ID	Route Name	AADF Average (2016)	10m Length cost	Weight	Weight x Cost
1	Birmingham Cross City	33,600	£9,000	7%	£591
2	Birmingham Outer Circle	16,600	£3,450	3%	£112
3	Birmingham to Stafford	22,600	£3,450	4%	£152
4	Black Country Route	25,700	£9,000	5%	£452
5	Black Country to Birmingham	22,700	£3,450	4%	£153
6	Coventry to Birmingham	40,500	£25,000	8%	£1,977
7	East of Coventry	25,700	£9,000	5%	£452
8	East of Walsall	11,500	£385	2%	£9
9	Kingswinford to Halesowen	17,200	£3,450	3%	£116
10	Lichfield to Wednesbury	22,000	£3,450	4%	£148
11	North and South Coventry	38,100	£9,000	7%	£670
12	Northfield to Wolverhampton	25,100	£9,000	5%	£441
13	Pensnett to Oldbury	17,900	£3,450	3%	£121
14	Sedgeley to Birmingham	19,100	£3,450	4%	£129
15	Solihull to Birmingham	22,400	£3,450	4%	£151
16	Stourbridge to Wednesbury	20,700	£3,450	4%	£139

Route ID	Route Name	AADF Average (2016)	10m Length cost	Weight	Weight x Cost
17	Stourbridge to North of Wolverhampton	25,700	£9,000	5%	£452
18	UK Central to Brownhills	22,000	£3,450	4%	£148
19	West Bromwich Route	17,000	£3,450	3%	£115
20	West of Birmingham	23,300	£3,450	5%	£157
21	Wednesfield to Wednesbury	11,600	£385	2%	£9
22	Wolverhampton to Brownhills	16,800	£3,450	3%	£113
23	Wolverhampton to Halesowen	14,300	£385	3%	£11
<b>Total</b>		<b>512,100</b>	<b>Cost per roadwork day</b>	<b>2004 price</b>	<b>£6,815</b>
<b>Average</b>		<b>22,265</b>	<b>Cost per roadwork day</b>	<b>2018 price</b>	<b>£9,677.50</b>

*Figure I14.4 Weighted daily cost of delay due to roadworks in 2004 prices*

### **B3 – Capability to provide umbrella coordination of the region’s transport networks out of UTC Centre normal operating hours [quantifiable]**

The benefits estimated in respect of unplanned events and roadworks can be achieved through 07:00-21:00 operation during the week plus 08:00 to 18:00 at weekends. In terms of quantifiable benefits, 24 hour operations are beneficial in preventing unplanned events that happen overnight continuing into the peak hour of the next day.

Option 6 envisages 24/7 operations so we should estimate any quantifiable benefit from reducing the congestion in the peak hour by earlier interventions in the overnight and, more importantly, the pre a.m. peak period (06:00-08:00).

A reasonable assumption is that 10% of the pre-a.m. peak hours unplanned events will run into the peak period unless intervention is made. The RTCC should pay particular attention to this problem and ought to be able to reduce the overrun into the peak period by, on average, 15 minutes.

Using the same logic as we have used for unplanned events we can estimate the benefits by multiplying the number of events impacted, the number of minutes of congestion saved and the peak hour cost value.

#### **Realisation of benefits over time**

Not all available benefits will be realised in the early years as the capability and expertise will not be fully implemented. We anticipate the ramp up of benefits to be as follows

Option	2019/20	2020/21	2021/22	2022 onwards
Option 3	0%	50%	100%	100%
Option 6	0%	30%	70%	100%

**Benefits profiles for Options 3 and 6.**

The following tables show the potential quantifiable benefits for the RTCC Options 3 and 6 for the period 2019/20 to 2028/29. These have been created using the methodology created above. These values will be used in the economic case NPV calculations.

**Table of benefits over time Option 3**

Year	Peak Benefits (Weekday 8am-10am + 4pm-6pm)	Weekend and IP Benefits (Weekday 10am-4pm + Weekend + Overnight)	Roadworks co-ordination	Total Co-ordination Benefits	% of benefits realised in year	Realised benefits for Option 3	2019/20 prices (present value)
2019/20	£12.54	£1.80	£0.48	£14.83	0%	<b>£0.00</b>	£0
2020/21	£12.82	£1.84	£0.48	£15.15	50%	<b>£7.57</b>	£7.32
2021/22	£13.12	£1.89	£0.48	£15.49	100%	<b>£15.49</b>	£14.46
2022/23	£13.44	£1.93	£0.48	£15.86	100%	<b>£15.86</b>	£14.30
2023/24	£13.80	£1.98	£0.48	£16.26	100%	<b>£16.26</b>	£14.17
2024/25	£14.18	£2.04	£0.48	£16.71	100%	<b>£16.71</b>	£14.07
2025/26	£14.60	£2.10	£0.48	£17.18	100%	<b>£17.18</b>	£13.98
2026/27	£15.05	£2.16	£0.48	£17.70	100%	<b>£17.70</b>	£13.91
2027/28	£15.53	£2.23	£0.48	£18.24	100%	<b>£18.24</b>	£13.85
2028/29	£16.04	£2.31	£0.48	£18.83	100%	<b>£18.83</b>	£13.81
<b>Total</b>	<b>£141.12</b>	<b>£20.28</b>	<b>£4.84</b>	<b>£166.23</b>		<b>£143.83</b>	<b>£119.86</b>

Values are in £M

**Table of benefits over time Option 6**

Year	Total Co-ordination Benefits	24/7 operation Benefits (Weekday 6am-8am)	Peak Benefits (Weekday 8am-10am + 4pm-6pm)	IP Benefits (Weekday 10am-4pm + Weekend + Overnight)	Roadworks management	Total Management Benefits	Total co-ordination and management Benefits	% of benefits realised in year	Realised benefits for Option 6	2019/20 prices (present value)
2019/20	£14.83	£1.24	£12.54	£2.58	£0.97	£17.33	£30.71	0%	<b>£0.00</b>	£0.00
2020/21	£15.15	£1.27	£12.82	£2.64	£0.97	£17.69	£31.39	30%	<b>£9.42</b>	£9.10
2021/22	£15.49	£1.29	£13.12	£2.70	£0.97	£18.08	£32.12	70%	<b>£22.48</b>	£20.99
2022/23	£15.86	£1.33	£13.44	£2.77	£0.97	£18.50	£32.90	100%	<b>£32.90</b>	£29.68
2023/24	£16.26	£1.36	£13.80	£2.84	£0.97	£18.97	£33.78	100%	<b>£33.78</b>	£29.44
2024/25	£16.71	£1.40	£14.18	£2.92	£0.97	£19.47	£34.72	100%	<b>£34.72</b>	£29.24
2025/26	£17.18	£1.44	£14.60	£3.01	£0.97	£20.02	£35.75	100%	<b>£35.75</b>	£29.08
2026/27	£17.70	£1.49	£15.05	£3.10	£0.97	£20.60	£36.84	100%	<b>£36.84</b>	£28.96
2027/28	£18.24	£1.53	£15.53	£3.20	£0.97	£21.23	£38.02	100%	<b>£38.02</b>	£28.87
2028/29	£18.83	£1.58	£16.04	£3.30	£0.97	£21.89	£39.26	100%	<b>£39.26</b>	£28.81
<b>Total</b>	<b>£166.23</b>	<b>£13.92</b>	<b>£141.12</b>	<b>£29.07</b>	<b>£9.68</b>	<b>£193.78</b>	<b>£345.49</b>		<b>£283.17</b>	<b>£234.15</b>

Values are in £M

## Appendix I15

### Derivation of the long list of options

#### Long list of options from the Strategic Outline Business Case

A long list of five options for the RTCC was defined in the SOBC as follows:

- do-nothing;
- a “virtual” RTCC;
- a physical RTCC;
- a temporary low cost centre with no legacy benefits; and
- a permanent facility with real legacy benefits.

This list was considered to be a valid starting point for more detailed analysis but needed further enhancement to ensure that other, non-location criteria are taken into account when defining the options for consideration.

#### Updating the long list of options

The HM Treasury’s Green Book sets out an approach for defining a long list based on the use of an Options Framework<sup>19</sup>. The Framework uses a number of “categories of choice” formulated around the “who”, the “what”, the “when”, the “where” and the “how” to provide the basis for a long list of options as follows:

- Scoping options including levels of functionality; geographic scope; population/user base, organisation, etc;
- Service solution options including what forms the scheme could take;
- Service delivery options for scheme delivery including in-house delivery, outsourcing, delivery through a PPP, etc;
- Implementation options including big bang implementation, phased implementation, modular delivery, etc; and
- Funding options for the scheme.

In the case of the RTCC, the service delivery options and funding options are primarily the same regardless of any other considerations. In order to keep the process for deriving the long list manageable, these were therefore excluded from further consideration at this stage (although they were used as part of the assessment of the short list of options).

The scoping options, service solution options and implementation options were each expanded into a series of criteria specific to the RTCC which could be used as the basis for defining different long list options as follows:

Options Framework categories of choice	Criteria used to define long list options
Scoping options	<ul style="list-style-type: none"> <li>• Functional scope</li> <li>• Hours of operation</li> <li>• Geography</li> </ul>
Service solution options	<ul style="list-style-type: none"> <li>• Capability</li> <li>• Physical space</li> <li>• Permanency</li> <li>• Organisation</li> <li>• Resourcing</li> </ul>

<sup>19</sup> Green Book Guidance on Public Sector Business Cases using the Five Case Model 2013 Update, Chapter 5  
West Midlands Combined Authority  
Regional Transport Coordination Centre  
Final Business Case

Options Framework categories of choice	Criteria used to define long list options
Implementation options	<ul style="list-style-type: none"> <li>• The timeline implied by different combinations of profile elements leading to the BCOs being realised</li> <li>• The timeline for elements under the criteria “Capability” and “Permanency” which refer to major events driven by Coventry as the UK City of Culture in 2021 and the 2022 Commonwealth Games, and influenced by completion of major works such as HS2 opening scheduled for 2026</li> </ul>

**Figure I15.1 Relationship between Green Book Options Framework and criteria used to define long list options**

Each of the criteria was further sub-divided into elements which could be combined in different ways to form the long list of options. The possible combinations of elements within each of the criteria formed a matrix (see Figure I15.2). While the nature of the matrix meant that there were numerous combinations of criteria and elements, discussions with stakeholders, the preliminary Strategic Case and the Operational Model set out in Deliverable 1 and the SOBC made it clear that many combinations were either impractical or would not be politically acceptable. These were discounted from further analysis.

Some of the elements were also kept deliberately generic. For example, elements under the criteria “physical space” refer to an “existing centre”. In principle, this could be one of several existing UTC centres across the region but the specifics were not defined at this stage in order to keep the number of long list options manageable.

<b>Criteria</b>	<b>Do nothing</b>	<b>Elements used to form long list options</b>					
<b>Functional scope</b>	<ul style="list-style-type: none"> <li>As existing</li> </ul>	<ul style="list-style-type: none"> <li>Management of people and business movements:               <ul style="list-style-type: none"> <li>Surface operations – private car, delivery/freight and bus</li> <li>Pedestrians and cyclists</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Contingency planning:               <ul style="list-style-type: none"> <li>Initiating region-wide response to incidents</li> <li>Informed by intelligence-led scenario planning and simulated decision support</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Management of people and business movements:               <ul style="list-style-type: none"> <li>Surface operations - rail and tram operations</li> <li>“Street” activities (e.g. refuse collection, deliveries, etc)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Safety and security:               <ul style="list-style-type: none"> <li>Support for police coordination of events</li> <li>“Blue light” routes</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Safety and security:               <ul style="list-style-type: none"> <li>Crime and anti-social behaviour monitoring at transport facilities/routes</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Environmental management:               <ul style="list-style-type: none"> <li>Clean air zone monitoring</li> <li>Noise monitoring</li> <li>Initiating mitigating actions and citizen information</li> </ul> </li> </ul>
<b>Capability</b>	<ul style="list-style-type: none"> <li>As existing</li> </ul>	<ul style="list-style-type: none"> <li>Roadworks coordination</li> <li>Single view of network</li> <li>Output to “Travel Information Service”</li> </ul>	<ul style="list-style-type: none"> <li>Incident planning</li> <li>Incident response coordination</li> <li>Network monitoring and reporting</li> </ul>	<ul style="list-style-type: none"> <li>Major events management and control</li> </ul>	<ul style="list-style-type: none"> <li>Incident management and control (e.g. Gold and/or Silver control)</li> </ul>	<ul style="list-style-type: none"> <li>As-needed control of all management and control of all transport networks/services (e.g. for major events, etc)</li> </ul>	<ul style="list-style-type: none"> <li>Permanent management and control of all transport networks/services</li> </ul>
<b>Hours of operation</b>	<ul style="list-style-type: none"> <li>As existing</li> </ul>	<ul style="list-style-type: none"> <li>Weekends 24/7</li> <li>Weekdays out of UTC operational hours</li> </ul>	<ul style="list-style-type: none"> <li>Time-limited 24/7</li> </ul>	<ul style="list-style-type: none"> <li>Permanent 24/7</li> </ul>			
<b>Geography</b>	<ul style="list-style-type: none"> <li>As existing</li> </ul>	<ul style="list-style-type: none"> <li>TfWM Key Route Network</li> </ul>	<ul style="list-style-type: none"> <li>HE Strategic Road Network</li> </ul>	<ul style="list-style-type: none"> <li>All roads within WMCA region</li> </ul>	<ul style="list-style-type: none"> <li>All modes within WMCA region</li> </ul>		
<b>Physical space</b>	<ul style="list-style-type: none"> <li>As existing</li> </ul>	<ul style="list-style-type: none"> <li>Virtual connectivity between existing centres</li> </ul>	<ul style="list-style-type: none"> <li>Existing space in existing building</li> </ul>	<ul style="list-style-type: none"> <li>Expand one of existing centres</li> </ul>	<ul style="list-style-type: none"> <li>New building/centre retaining all existing facilities</li> </ul>	<ul style="list-style-type: none"> <li>New building/centre replacing all existing facilities</li> </ul>	
<b>Permanency</b>	<ul style="list-style-type: none"> <li>As existing</li> </ul>	<ul style="list-style-type: none"> <li>Time-limited temporary capability</li> </ul>	<ul style="list-style-type: none"> <li>Permanent capability with ability to scale for special events and future demands</li> </ul>	<ul style="list-style-type: none"> <li>Permanent capability with space to manage special events and future demands</li> </ul>	<ul style="list-style-type: none"> <li>Permanent capability fully equipped to manage special events and future demands</li> </ul>		
<b>Organisation</b>	<ul style="list-style-type: none"> <li>As existing</li> </ul>	<ul style="list-style-type: none"> <li>Seven authorities</li> <li>Highways England</li> <li>WMCA/TfWM</li> </ul>	<ul style="list-style-type: none"> <li>Police</li> <li>Warwickshire and surrounding Shire Counties</li> </ul>	<ul style="list-style-type: none"> <li>Multi-agency response teams (i.e. including Fire and Rescue Service, Ambulance, British Transport Police, etc)</li> </ul>	<ul style="list-style-type: none"> <li>Public transport service operators</li> </ul>	<ul style="list-style-type: none"> <li>Other service providers, e.g. Inrix</li> </ul>	
<b>Resourcing</b>	<ul style="list-style-type: none"> <li>As existing</li> </ul>	<ul style="list-style-type: none"> <li>Existing personnel in current roles</li> </ul>	<ul style="list-style-type: none"> <li>Core Liaison Team</li> </ul>	<ul style="list-style-type: none"> <li>Core Coordination Team</li> </ul>	<ul style="list-style-type: none"> <li>Time-limited 24/7 operational resources</li> </ul>	<ul style="list-style-type: none"> <li>24/7 operational resources</li> </ul>	

**Figure I15.2 Long list option definition matrix**

Using different combinations of elements against each of the criteria, seven long list options (three of which have further sub-options) have been defined for further consideration as follows:

- Long List Option 1 – Do nothing;
- Long List Option 2 – Operational liaison;
- Long List Option 3 – Operational liaison, coordination and support;
- Long List Option 4a, b, c – Major planned events coordination<sup>20</sup>;
- Long List Option 5a, b, c – 24/7 incident coordination and management (i.e. emergency services co-located in RTCC on an as-needed basis);
- Long List Option 6a, b, c – Major planned event and 24/7 incident coordination and management (i.e. coordination and management of transport networks from the RTCC, emergency services embedded in the RTCC); and
- Long List Option 7 – Centralised coordination and management from the RTCC.

These are described in more detail below.

### Description of each long list option

Key features of each of the long list options are as follows.

	<b>Long List Option 1 – Do Nothing</b>
<i>Functional scope</i>	<ul style="list-style-type: none"> <li>• As existing</li> </ul>
<i>Capability</i>	
<i>Hours of operation</i>	
<i>Geography</i>	
<i>Physical space</i>	
<i>Permanency</i>	
<i>Organisation</i>	
<i>Resourcing</i>	

**Figure I15.3 Long list option 1**

	<b>Long List Option 2 – Operational Liaison</b>
<i>Functional scope</i>	<ul style="list-style-type: none"> <li>• Management of people and business movements:               <ul style="list-style-type: none"> <li>- Surface operations – private car, delivery/freight and bus</li> <li>- Pedestrians and cyclists</li> </ul> </li> </ul>
<i>Capability</i>	<ul style="list-style-type: none"> <li>• Roadworks coordination</li> <li>• Single view of network</li> <li>• Output to “Travel Information Service”</li> </ul>
<i>Hours of operation</i>	<ul style="list-style-type: none"> <li>• Weekends 24/7</li> <li>• Weekdays out of UTC operational hours</li> </ul>
<i>Geography</i>	<ul style="list-style-type: none"> <li>• TfWM Key Route Network</li> </ul>

<sup>20</sup> References to sub-options “a”, “b” and “c” refer to long list options where the physical space could be either be expanding one of existing centres, developing a new building/centre which retains all existing facilities or a new building/centre which replaces all existing facilities respectively

<b>Long List Option 2 – Operational Liaison</b>	
	<ul style="list-style-type: none"> <li>• HE Strategic Road Network</li> </ul>
<i>Physical space</i>	<ul style="list-style-type: none"> <li>• Virtual connectivity between existing centres</li> <li>• Existing space in existing building for Core Liaison Team</li> </ul>
<i>Permanency</i>	<ul style="list-style-type: none"> <li>• As existing</li> </ul>
<i>Organisation</i>	<ul style="list-style-type: none"> <li>• Seven authorities</li> <li>• Highways England</li> <li>• WMCA/TfWM</li> </ul>
<i>Resourcing</i>	<ul style="list-style-type: none"> <li>• Existing personnel in current roles</li> <li>• Core Liaison Team in one location</li> </ul>

**Figure I15.4 Long list option 2**

<b>Long List Option 3 – Operational liaison, coordination and support</b>	
<i>Functional scope</i>	<ul style="list-style-type: none"> <li>• Management of people and business movements:               <ul style="list-style-type: none"> <li>- Surface operations – private car, delivery/freight and bus</li> <li>- Pedestrians and cyclists</li> </ul> </li> <li>• Contingency planning:               <ul style="list-style-type: none"> <li>- Initiating region-wide response to incidents</li> <li>- Informed by intelligence-led scenario planning and simulated decision support</li> </ul> </li> </ul>
<i>Capability</i>	<ul style="list-style-type: none"> <li>• Roadworks coordination</li> <li>• Single view of network</li> <li>• Output to “Travel Information Service”</li> <li>• Incident planning</li> <li>• Incident response coordination</li> <li>• Network monitoring and reporting</li> </ul>
<i>Hours of operation</i>	<ul style="list-style-type: none"> <li>• Weekends 24/7</li> <li>• Weekdays out of UTC operational hours</li> </ul>
<i>Geography</i>	<ul style="list-style-type: none"> <li>• TfWM Key Route Network</li> <li>• HE Strategic Road Network</li> </ul>
<i>Physical space</i>	<ul style="list-style-type: none"> <li>• Virtual connectivity between existing centres</li> <li>• Existing space in existing building for Core Coordination Team</li> </ul>
<i>Permanency</i>	<ul style="list-style-type: none"> <li>• Permanent capability with ability to scale for special events and future demands</li> </ul>
<i>Organisation</i>	<ul style="list-style-type: none"> <li>• Seven authorities</li> <li>• Highways England</li> <li>• WMCA/TfWM</li> </ul>
<i>Resourcing</i>	<ul style="list-style-type: none"> <li>• Existing personnel in current roles</li> <li>• Core Coordination Team in one location</li> </ul>

**Figure I15.5 Long list option 3**

<b>Long List Option 4a, b, c – Coordinating major planned events</b>	
<i>Functional scope</i>	<ul style="list-style-type: none"> <li>• Management of people and business movements:               <ul style="list-style-type: none"> <li>- Surface operations – private car, delivery/freight and bus</li> <li>- Pedestrians and cyclists</li> </ul> </li> </ul>

<b>Long List Option 4a, b, c – Coordinating major planned events</b>	
	<ul style="list-style-type: none"> <li>- Surface operations - rail and tram operations</li> <li>- “Street” activities (e.g. refuse collection, deliveries, etc)</li> <li>• Contingency planning:               <ul style="list-style-type: none"> <li>- Initiating region-wide response to incidents</li> <li>- Informed by intelligence-led scenario planning and simulated decision support</li> </ul> </li> <li>• Safety and security:               <ul style="list-style-type: none"> <li>- Support for Police coordination of events</li> <li>- “Blue light” routes</li> </ul> </li> </ul>
<i>Capability</i>	<ul style="list-style-type: none"> <li>• Roadworks coordination</li> <li>• Single view of network</li> <li>• Output to “Travel Information Service”</li> <li>• Incident planning</li> <li>• Incident response coordination</li> <li>• Network monitoring and reporting</li> <li>• Major events management and control</li> </ul>
<i>Hours of operation</i>	<ul style="list-style-type: none"> <li>• Time limited 24/7</li> </ul>
<i>Geography</i>	<ul style="list-style-type: none"> <li>• All roads within the WMCA’s region</li> </ul>
<i>Physical space</i>	<ul style="list-style-type: none"> <li>• Option 4a - Expand one of existing centres</li> <li>• Option 4b - New building/centre retaining all existing facilities</li> <li>• Option 4c - New building/centre replacing all existing facilities</li> </ul>
<i>Permanency</i>	<ul style="list-style-type: none"> <li>• Permanent capability with space to manage special events and future demands</li> </ul>
<i>Organisation</i>	<ul style="list-style-type: none"> <li>• Seven authorities</li> <li>• Highways England</li> <li>• WMCA/TfWM</li> <li>• Police</li> <li>• Warwickshire and surrounding Shire Counties</li> <li>• Multi-agency response teams (i.e. including Fire and Rescue Service, Ambulance, British Transport Police, etc)</li> <li>• Public transport service operators</li> </ul>
<i>Resourcing</i>	<ul style="list-style-type: none"> <li>• Existing personnel in current roles</li> <li>• Core Coordination Team in one location</li> <li>• Time-limited 24/7 operational resources in same location</li> </ul>

**Figure I15.6 Long list option 4a, b and c**

<b>Long List Option 5a, b, c – 24/7 incident management and coordination (i.e. emergency services co-located in the RTCC on as-needed basis)</b>	
<i>Functional scope</i>	<ul style="list-style-type: none"> <li>• Management of people and business movements:               <ul style="list-style-type: none"> <li>- Surface operations – private car, delivery/freight and bus</li> <li>- Pedestrians and cyclists</li> <li>- Surface operations - rail and tram operations</li> <li>- “Street” activities (e.g. refuse collection, deliveries, etc)</li> </ul> </li> <li>• Contingency planning:               <ul style="list-style-type: none"> <li>- Initiating region-wide response to incidents</li> <li>- Informed by intelligence-led scenario planning and simulated decision support</li> </ul> </li> <li>• Safety and security:               <ul style="list-style-type: none"> <li>- Support for Police coordination of events</li> <li>- “Blue light” routes</li> </ul> </li> </ul>

<b>Long List Option 5a, b, c – 24/7 incident management and coordination (i.e. emergency services co-located in the RTCC on as-needed basis)</b>	
<i>Capability</i>	<ul style="list-style-type: none"> <li>• Roadworks coordination</li> <li>• Single view of network</li> <li>• Output to “Travel Information Service”</li> <li>• Incident planning</li> <li>• Incident response coordination</li> <li>• Network monitoring and reporting</li> <li>• Incident management and control (e.g. Gold and/or Silver control)</li> </ul>
<i>Hours of operation</i>	<ul style="list-style-type: none"> <li>• Time limited 24/7</li> </ul>
<i>Geography</i>	<ul style="list-style-type: none"> <li>• All roads within the WMCA's region</li> </ul>
<i>Physical space</i>	<ul style="list-style-type: none"> <li>• Option 5a - Expand one of existing centres</li> <li>• Option 5b - New building/centre retaining all existing facilities</li> <li>• Option 5c - New building/centre replacing all existing facilities</li> </ul>
<i>Permanency</i>	<ul style="list-style-type: none"> <li>• Permanent capability fully equipped to manage special events and future demands</li> </ul>
<i>Organisation</i>	<ul style="list-style-type: none"> <li>• Seven authorities</li> <li>• Highways England</li> <li>• WMCA/TfWM</li> <li>• Police</li> <li>• Warwickshire and surrounding Shire Counties</li> <li>• Multi-agency response teams (i.e. including Fire and Rescue Service, Ambulance, British Transport Police, etc)</li> </ul>
<i>Resourcing</i>	<ul style="list-style-type: none"> <li>• Existing personnel in current roles</li> <li>• Core Coordination Team in one location</li> <li>• 24/7 operational resources in same location</li> </ul>

**Figure 115.7 Long list option 5a, b and c**

<b>Long List Option 6a, b, c – 24/7 incident control (i.e. control of transport networks from the RTCC, emergency services embedded in the RTCC)</b>	
<i>Functional scope</i>	<ul style="list-style-type: none"> <li>• Management of people and business movements:               <ul style="list-style-type: none"> <li>- Surface operations – private car, delivery/freight and bus</li> <li>- Pedestrians and cyclists</li> <li>- Surface operations - rail and tram operations</li> <li>- “Street” activities (e.g. refuse collection, deliveries, etc)</li> </ul> </li> <li>• Contingency planning:               <ul style="list-style-type: none"> <li>- Initiating region-wide response to incidents</li> <li>- Informed by intelligence-led scenario planning and simulated decision support</li> </ul> </li> <li>• Safety and security:               <ul style="list-style-type: none"> <li>- Support for Police coordination of events</li> <li>- “Blue light” routes</li> <li>- Crime and anti-social behaviour monitoring at transport facilities/routes</li> </ul> </li> </ul>
<i>Capability</i>	<ul style="list-style-type: none"> <li>• Roadworks coordination</li> <li>• Single view of network</li> <li>• Output to “Travel Information Service”</li> <li>• Incident planning</li> <li>• Incident response coordination</li> <li>• Network monitoring and reporting</li> </ul>

<b>Long List Option 6a, b, c – 24/7 incident control (i.e. control of transport networks from the RTCC, emergency services embedded in the RTCC)</b>	
	<ul style="list-style-type: none"> <li>• Incident management and control (e.g. Gold and/or Silver control)</li> <li>• Major events management and control</li> <li>• As-needed control of all management and control of all transport networks/services (e.g. for major events, etc)</li> </ul>
<i>Hours of operation</i>	<ul style="list-style-type: none"> <li>• Everyday 24/7</li> </ul>
<i>Geography</i>	<ul style="list-style-type: none"> <li>• All roads within WMCA region</li> </ul>
<i>Physical space</i>	<ul style="list-style-type: none"> <li>• Option 6a - Expand one of existing centres</li> <li>• Option 6b - New building/centre retaining all existing facilities</li> <li>• Option 6c - New building/centre replacing all existing facilities</li> </ul>
<i>Permanency</i>	<ul style="list-style-type: none"> <li>• Permanent capability fully equipped to manage special events and future demands</li> </ul>
<i>Organisation</i>	<ul style="list-style-type: none"> <li>• Seven authorities</li> <li>• Highways England</li> <li>• WMCA/TfWM</li> <li>• Police</li> <li>• Warwickshire and surrounding Shire Counties</li> <li>• Multi-agency response teams (i.e. including Fire and Rescue Service, Ambulance, BT Police, etc)</li> <li>• Public transport service operators</li> </ul>
<i>Resourcing</i>	<ul style="list-style-type: none"> <li>• Existing personnel in current roles</li> <li>• Core Coordination Team in one location</li> <li>• 24/7 operational resources in same location</li> </ul>

**Figure I15.8 Long list option 6a, b and c**

<b>Long List Option 7 – Centralised management and control from the RTCC</b>	
<i>Functional scope</i>	<ul style="list-style-type: none"> <li>• Management of people and business movements: <ul style="list-style-type: none"> <li>- Surface operations – private car, delivery/freight and bus</li> <li>- Pedestrians and cyclists</li> <li>- Surface operations - rail and tram operations</li> <li>- “Street” activities (e.g. refuse collection, deliveries, etc)</li> </ul> </li> <li>• Contingency planning: <ul style="list-style-type: none"> <li>- Initiating region-wide response to incidents</li> <li>- Informed by intelligence-led scenario planning and simulated decision support</li> </ul> </li> <li>• Safety and security: <ul style="list-style-type: none"> <li>- Support for Police coordination of events</li> <li>- “Blue light” routes</li> <li>- Crime and anti-social behaviour monitoring at transport facilities/routes</li> </ul> </li> <li>• Environmental management: <ul style="list-style-type: none"> <li>- Clean air zone monitoring</li> <li>- Noise monitoring</li> <li>- Initiating mitigating actions and citizen information</li> </ul> </li> </ul>
<i>Capability</i>	<ul style="list-style-type: none"> <li>• Roadworks coordination</li> <li>• Single view of network</li> <li>• Output to “Travel Information Service”</li> <li>• Incident planning</li> <li>• Incident response coordination</li> </ul>

<b>Long List Option 7 – Centralised management and control from the RTCC</b>	
	<ul style="list-style-type: none"> <li>• Network monitoring and reporting</li> <li>• Incident management and control (e.g. Gold and/or Silver control)</li> <li>• Permanent management and control of all transport networks/services</li> </ul>
<i>Hours of operation</i>	<ul style="list-style-type: none"> <li>• Everyday 24/7</li> </ul>
<i>Geography</i>	<ul style="list-style-type: none"> <li>• All roads within the WMCA's region</li> </ul>
<i>Physical space</i>	<ul style="list-style-type: none"> <li>• New building/centre replacing all existing facilities</li> </ul>
<i>Permanency</i>	<ul style="list-style-type: none"> <li>• Permanent capability fully equipped to manage special events and future demands</li> </ul>
<i>Organisation</i>	<ul style="list-style-type: none"> <li>• Seven authorities</li> <li>• Highways England</li> <li>• WMCA/TfWM</li> <li>• Police</li> <li>• Warwickshire and surrounding Shire Counties</li> <li>• Multi-agency response teams (i.e. including Fire and Rescue Service, Ambulance, BT Police, etc)</li> <li>• Public transport service operators</li> </ul>
<i>Resourcing</i>	<ul style="list-style-type: none"> <li>• Core Coordination Team in one location</li> <li>• 24/7 operational resources in same location</li> </ul>

**Figure 1 Long list option 7**

Each long list option was assessed against each of the HM Treasury's Green Book Critical Success Factors (CSFs) as follows:

- CSF1: Business Needs;
- CSF2: Strategic Fit;
- CSF3: Benefits Optimisation;
- CSF4: Potential Achievability;
- CSF5: Supply Side Capacity and Capability; and
- CSF6: Potential Affordability.

The outcome of this assessment was as follows:

- For CSF1 to CSF5, the contribution of each option was scored using a 1 to 10 scoring system where 1 indicated minimal contribution to the Critical Success Factor in question and 10 indicated the highest contribution; and
- For CSF6, the relative affordability of each option compared with the Do Nothing option was scored using a 0 to -10 scoring system where minus figures indicated a relatively greater cost than continuing with the Do Nothing option.

Using this approach, a matrix was created which allocated scores to indicate the extent to which each criteria/element defined in the Long List Option Definition Matrix contributed to each CSF. The contribution of each criteria/element to the CSFs was assessed on the basis of the following factors:

- the SOBC for the RTCC published in October 2016;
- the transport objectives identified in the West Midlands Strategic Transport Plan, "Movement for Growth" as summarised in Section 2 of Deliverable 1;

- outcomes from discussions with stakeholders documented in Section 2 and Appendix A of Deliverable 1; and
- IBI's professional judgement based on experience of working on similar centres around the world.

Whilst the allocation of scores was methodical and consistent, by necessity, there was a degree of subjectivity in the process. Subjectivity was kept to a minimum by keeping the assessment of the contribution each criteria/element made to the six CSFs independent from the rest of the assessment. Sensitivity tests were also carried out which demonstrated that reasonable variations to the score allocation matrix consistent with the four factors listed above had no material impact on the outcome of the assessment.

The scores allocated to the combination of criteria/elements making up each long list option were then summed to give the total scores for each option.

A number of Long List Option have an "a", "b" or "c" variant as follows:

- Variant "a", refers to an option where the physical space could be created by expanding one of the existing centres;
- Variant "b" refers to an option which involves developing a new building/centre but retaining all existing facilities; and
- Variant "c" refers to an option to develop a new building/centre which replaces all existing facilities.

In the Critical Success Factor analysis, Variant "a" was assessed as the construction of a new facility is considered to be unlikely at this stage.

The results of the assessment of the long list of options against each of the Critical Success Factors is presented in Figure I15.10.

Critical Success Factor	Long List Options						
	1	2	3	4a	5a	6a	7
<i>CSF1 - Business needs</i>	0	79	112	137	126	145	145
<i>CSF2 - Strategic fit</i>	0	79	112	137	126	141	141
<i>CSF3 - Benefits optimisation</i>	0	82	109	158	147	181	182
<i>CSF4 - Potential Achievability</i>	0	68	95	118	114	131	135
<i>CSF5 - Supply side capacity and capability</i>	0	52	77	115	111	124	128
<i>CSF6 - Potential Affordability</i>	0	-8	-15	-66	-54	-106	-126
<b>Total</b>	<b>0</b>	<b>352</b>	<b>490</b>	<b>599</b>	<b>570</b>	<b>616</b>	<b>605</b>

**Figure I15.10 Summary of results of Critical Success Factor assessment**

The HMT Green Book requires further consideration of the Do Nothing/Minimum option at short list stage in order to provide a baseline against which other options can be assessed. Option 1 – Do Nothing was therefore retained on the short list.

In order to retain sufficient flexibility when considering short listed options, it was decided to retain at least one option which did not involve integration with the Police and emergency services and at least one option which did involve integration with the Police and emergency services.

On the basis of the Critical Success Factor assessment and using the rationale for the selection of the Short List Options set out above, it is recommended that Long List Options 1, 3 and 6 are taken forward as the short listed options for detailed assessment.

- Option 1 – Do Nothing is a requirement of the HMT Green Book in order to provide a baseline for comparison;
- Option 3 - Operational Liaison, Coordination and Support is the best scoring option which does not involve integration with the Police and emergency services; and
- Option 6 – Major Planned Event and 24/7 Incident Coordination and Management is the best scoring option which does involve integration with the Police and emergency services.

## Declaration

*To be completed by the Business Case Applicant:*

I hereby confirm that the information provided in this form is complete and, to the best of my knowledge, accurate.

I acknowledge that the West Midlands Combined Authority may seek to verify the information set forth herein, and agree to provide further information where it is available.

I acknowledge that any funding agreement reached with the WMCA is provisional until approved by the West Midlands Combined Authority Board and confirmed in writing.

Signed .....

Date .....

Name .....

Position .....

Organisation/Company .....

## Certificate of Approval

*To be completed by WMCA staff:*

I have read and understood the information provided by the applicant in this **Initial Proposal/Outline Business Case/Full Business Case** and confirm that the application has been evaluated in accordance with the West Midlands Combined Authority Assurance Framework and Project Lifecycle.

<p><b>Appraisal Panel</b></p>   <p>Decision: <b>Approve / Reject</b></p>  <p>Signed.....</p>  <p>Date .....</p>  <p>Name.....</p>  <p>Position.....</p>	<p><b>Investment Advisory Group</b></p>   <p>Decision: <b>Approve / Reject</b></p>  <p>Signed.....</p>  <p>Date .....</p>  <p>Name.....</p>  <p>Position.....</p>
<p><b>Management Board</b></p>	<p><b>Board</b></p>

<p>Decision: <b>Approve / Reject</b></p> <p>Signed.....</p> <p>Date .....</p> <p>Name.....</p> <p>Position.....</p>	<p>Decision: <b>Approve / Reject</b></p> <p>Signed.....</p> <p>Date .....</p> <p>Name.....</p> <p>Position.....</p>
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