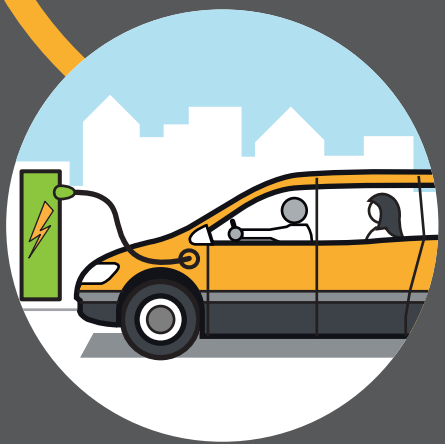
Norwich

Transforming Cities Fund

May 2020



INDUSTRIAL STRATEGY
TRANSFORMING CITIES FUND

Transport for Norwich

Norfolk County Council

Norfolk County Council

Contents

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Glossary of Abbreviations and Defined Terms

AQMA	Air Quality Management Area
AMAT	Active Mode Appraisal Toolkit
AMCB	Analysis of Monetised Costs and Benefits
AST	Appraisal Specification Table
BAME	Black, Asian and Minority Ethnic
BCIS	Building Cost Information Service
BCR	Benefit Cost Ratio
BGT	Broadland Growth Triangle
CCAG	Cycle City Ambition Grant
CORE	Medium Funding Scenario
COVID-19	Coronavirus Disease
DfT	Department for Transport
FMZ	Future Mobility Zone
GNR	Greater Norwich Region
GVA	Gross Value Added
INSET	Investment Sifting and Evaluation Tool
LA	Local Authority
LEP	Local Enterprise Partnership
M&E	Monitoring and Evaluation
NCC	Norfolk County Council
NNUH	Norfolk & Norwich University Hospital
NPPV	Net Present Public Value
NRP	Norwich Research Park
ORR	Outer Ring Road
P&R	Park & Ride
PA	Public Accounts
PVB	Present Value of Benefits

PVC	Present Value of Costs
SOBC	Strategic Outline Business Case
TAG	Transport Analysis Guidance
TCF	Transforming Cities Fund
TEE	Transport Economic Efficiency
TfN	Transport for Norwich
UEA	University of East Anglia
VfM	Value for Money

Transforming Cities Fund
Tranche 2 – Revised Package Proforma

Department for Transport

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This form is intended to simplify the development process for Local Authorities by avoiding a comprehensive rewrite of the November SOBCs. The purpose is to explain what further work has been done since then and to highlight key changes and updates to the proposed package.

Where appropriate we would still expect relevant, detailed appendices to be provided, particularly if there have been changes to the appraisal and modelling, but not limited to this. A comprehensive list of appendices would be appreciated, showing clearly if any appendices have been updated since November but also including any new ones. The below sections are just a template, so if there is any further information you would like to provide please do so and add where you feel it is most appropriate.

SECTION A – Package Overview

A1. Summary of the revised package:

Revised packages are presented for the Norwich Transforming Cities Fund (TCF) application, which are based around Low, Medium (Core) and High funding scenarios. These packages are summarised in the table below.

Package	Local contribution	Private contribution	DfT contribution (this should be based on your estimated per capita allocation +/- £5m)	Total cost
Low	£6.9m	£18.8m	£26.8m	£52.5m
Medium (Core)	£7.9m	£18.8m	£32.3m	£59.0m
High	£7.9m	£18.8m	£36.7m	£63.4m

We are seeking to continue investing in the city centre and key transport corridors and have prioritised corridors and schemes that will maximise benefits and value for money. We have also tried to deliver the best possible balance between bus, walking and cycling schemes, with consideration being given to the impacts that the Coronavirus disease (COVID-19) is currently having on travel behaviours, employment, education and training. A significant private-sector contribution in new and refurbished buses has been retained, which reflects confidence and support for our proposals from our largest bus operator. A copy of this commitment from First Bus can be found at **Annex 10**.

A2. Summary of the changes made from the November submission:

We have worked closely with colleagues at the District Councils, transport operators and stakeholders to define our new proposals, as well as taking on board feedback from the Department for Transport (DfT) on our November 2019 application. We have prioritised corridors and schemes that will maximise benefits and value for money and are deliverable within the challenging timescales of the current funding programme. We have also tried to deliver the best possible balance between bus, walking and cycling schemes, which will be supplemented by a co-ordinated and sustained behaviour change programme that will be locally funded and delivered. We have considered the impacts that COVID-19 is currently having on travel behaviours, employment, education and training and how our programmes will need to be delivered to best manage these impacts in the short / medium term as lockdown measures are eased.

Schemes that have not been included in these reduced programmes will remain within the wider Transport for Norwich (TfN) programme and will form a pipeline of future projects that we will look to deliver in the longer term or through alternative funding sources.

Summary of schemes selected

In our TCF resubmission, we are seeking to continue investing in the city centre and key transport corridors because the transport network in Norwich radiates out from the historic city centre in a hub-and-spoke arrangement. This has been in place for a considerable time and is the basis on which the current transport network has evolved.

Some corridors are more developed than others in terms of the provision of bus priority and walking / cycling infrastructure and all have different characteristics in terms of factors such as deprivation, employment, education, demographics, as well as travel behaviours and network usage. The development of our revised **Transforming Norwich** programme has considered which schemes and corridors will deliver the maximum impact within the timescales of the TCF, as well as securing essential private-sector investment.

Specific details on option development, shortlisting and selection process is outlined in **Sections B1 and B2**.

The city centre and corridors and their associated schemes have been reviewed. The **Transforming Norwich** retains investment in the following areas / corridors:

- Norwich city centre;
- Wymondham to city centre;
- Easton to city centre;
- Airport to city centre;
- Sprowston to city centre;
- Rackheath to city centre.

Whilst the list above represents the majority of the corridors presented in our November submission, we have focused on improvement schemes that deliver the greatest overall network benefit. With the commercially operated bus network in Norwich using cross-city routes, we have ensured that schemes delivering benefits to both corridors of a particular route are included. For example, the Pink Line (Service 11/12) service by First Bus operates along the Wymondham and Sprowston corridors, as well as through the city centre, and the Red Line (Service 23/24) operates along the Easton and Rackheath corridors. This approach has secured significant private investment in higher-quality and lower-emission buses, as well as improved bus service provision, and has enabled us to include substantial pedestrian and cycle improvements as complementary works along these corridors.

Not all schemes in the city centre or along these corridors are retained (more information outlined below) and the Yarmouth Road corridor has been removed completely from our resubmission. However, as outlined above, these schemes will remain within the wider TfN programme and will form a pipeline of future projects that we will look to deliver in the longer term or through alternative funding sources.

Summary of schemes omitted

Schemes that have been removed from this revised submission are outlined in detail in **Section B1**.

A3. Summary of the schemes selected in the new Core package:

A plan showing the locations of schemes in our Low, Core and High packages is provided in **Appendix A**. The reference numbers in the tables below are shown in the accompanying plan to help you locate the different schemes. A more detailed scheme list is provided in the Excel spreadsheet in **Annex 2**.

The DfT contribution has been allocated to individual schemes on a pro-rata basis, based on each total funding package (Low/Medium (Core)/High). As a result of this, the DfT contributions for schemes as shown in the Medium (Core) package will therefore be marginally different to that for the same scheme when funded as part of the Low or High packages. Where schemes support the overall vision of the **Transforming Norwich** programme, but are less closely aligned with the specific criteria set aside by the DfT for this fund, we have funded these solely from local contributions.

Reference	Scheme name	Brief description	Total scheme cost £	DfT contribution £
No Map Reference	Traffic signal priority for all buses	Develop the traffic control system to enable all buses to benefit from priority measures being available, improving the reliability and journey times of the public transport network.	57,800	48,351
1	St Stephen's Street	Improve bus stop infrastructure, pedestrian, cycle and public realm facilities through the busy heart of the city centre.	6,116,073	5,095,486
7/MH1	Norwich Rail Station mobility hub	Improve the Foundry Bridge junction next to the rail station with much more space for pedestrians and simpler crossing arrangements. Improve access for cyclists and provide improved facilities for buses to serve the station.	2,545,546	2,127,463
11	Thorpe Road (Clarence Road – Carrow Road)	Located on the edge of the city centre, this scheme involves the implementation of a contraflow lane to provide cyclists and bus passengers with a more direct and improved access to the rail station and city centre along this key access route from the east of the city.	820,150	630,700

Reference	Scheme name	Brief description	Total scheme cost £	DfT contribution £
9	Grapes Hill Roundabout	Review signalling arrangements to improve traffic flow, remove congestion to buses and general traffic through this busy junction and accommodate cycling and walking crossings for users of the pink pedalway.	333,609	279,072
10	City centre eastbound through-traffic reduction	Introducing eastbound through-traffic reductions in the city centre enables substantially improved facilities for pedestrians and conditions for cycling between the northern part of the city centre and the market area. A reduction in traffic through Agricultural Hall Plain and down Prince of Wales Road will reduce delays to buses along this key city centre bus corridor and improve conditions for walking and cycling in this part of the network that saw investment in Tranche 1 TCF.	2,129,638	1,781,495
3	Tombland	Significant improvements to walking and cycling provision at this key cultural and heritage site will be delivered. This site is also a key interchange with bus services and the pink pedalway cycle route.	2,729,350	2,137,483
5	King Street	Widen pavements and provide dedicated cycle facilities to create a coherent and direct link for walking and cycling along National Cycle Route 1 and improve the connection between cultural institutions, substantial new residential development and the city centre.	1,036,030	775,157
MH2	Norwich Bus Station mobility hub	Improve pedestrian access to the Norwich Bus Station from Queens Road, encouraging an increased number of people to access the Norwich Bus Station from the west.	437,043	312,983

Reference	Scheme name	Brief description	Total scheme cost £	DfT contribution £
No Map Reference	Wayfinding	Invest in new and transformative infrastructure to encourage more sustainable modes of transport for commuting and leisure journeys. Feedback is that a lack of wayfinding discourages people from trying different modes and routes and an improvement to this aspect of the sustainable transport network will support the liveability and healthy, active lifestyles of the city. This will also extend the pedalway signage system to reflect the adjustments to network configuration as a result of further investment in the pedalway network.	882,000	0
MH4	Wymondham Rail Station platform access	Deliver step-free access to the Cambridge-bound platform, which is currently not available for those with impaired mobility, suitcases, pushchairs, etc.	863,250	604,933
MH7	Thickthorn P&R Phase 1	Expand the existing Park & Ride site by circa 400 spaces in order to facilitate a new service to the expanding Norwich Research Park (NRP). Establish a 'Park and Cycle' initiative, building on the Beryl Bike scheme, implemented using Tranche 1 of TCF, as well as cycling connections to the nearby blue pedalway. There was a strong desire from the NRP for this new Park & Ride service (parking + bus service) for a long time prior to COVID-19. The NRP remains a key site for research and development, particularly given the challenges posed by COVID-19 and climatic change, and the internationally significant work that the NRP undertakes to address these. We are confident that post-COVID-19 demand for this service will be strong for these reasons.	2,780,000	2,325,539

Reference	Scheme name	Brief description	Total scheme cost £	DfT contribution £
MH10	Norfolk & Norwich University Hospital mobility hub	Provide a new bus interchange close to the outpatients entrance that resolves congestion and reduces the conflict with vulnerable users of the disabled car parking area. Introduce bike share to strengthen the mobility hub provision and increase passenger capacity.	1,726,499	1,444,260
14	South Park Avenue and Unthank Road	A narrow carriageway along part of this route causes substantial delays to buses due to their size and lack of manoeuvrability. Carriageway widening and removal of obstructive parking will reduce bus journey times and improve the reliability of the busiest bus route in Norfolk between the city centre and the University of East Anglia (UEA) / NRP.	467,074	390,719
17	Newmarket Road (Eaton Road – Christchurch Road)	Extend the high-quality Danish stepped cycle track to the Outer Ring Road (ORR). Introduce a new signalised crossing to accommodate the large numbers of pedestrians and cyclists travelling to the City of Norwich School. Newmarket Road is a key bus corridor and the large flow of buses will see journey time reductions and improved reliability through traffic junctions at this location.	1,065,814	681,183
18	St Stephen's Road	Widen footway substantially to accommodate high pedestrian volumes heading between Norwich Bus Station and St Stephen's Street bus facilities to City College Norwich alongside the busy A11 corridor.	1,768,492	1,479,387
24	Dereham Road (Longwater Lane - Wendene)	Widen the off-carriageway path for use by cyclists, who are currently forced to share the carriageway with large quantities of fast-moving traffic. Introduce new bus lanes on both approaches to a key junction to remove delays experienced by bus passengers.	700,145	585,689

Reference	Scheme name	Brief description	Total scheme cost £	DfT contribution £
25	Dereham Road / Richmond Road	Upgrade the existing crossing with an improved shared path facility to allow for increased capacity for pedestrians and cyclists, providing a safe connection for nearby pupils and residents.	402,838	336,984
26/MH16	Dereham Road / Breckland Road with Costessey & Bowthorpe mobility hub	Provide a new bus gate and consolidate bus stops at a new mobility hub at a more central location where residents of Costessey and Bowthorpe can access more frequent and express bus services. Replace the existing unappealing subway with a signal-controlled pedestrian and cycle crossing.	4,089,522	3,398,924
27	Earlham Green Lane – Marriott's Way	Improve the environment for cycling between Earlham Green Lane and Norwich Road to create a safe link between the green pedalway and National Cycle Route 1, both of which work to provide alternative cycle routes to the busy Dereham Road. Upgrade the existing pedestrian crossing over Dereham Road with a wider crossing facility that can also be used by cyclists.	352,442	169,348
31	Marriott's Way to Hellesdon Road	Realign the existing Marriott's Way walking and cycling route to the more direct trackbed route with a new sealed surface and a ramped access to a new crossing close to Hellesdon Bridge.	227,648	190,433
32/MH17	Dereham Road / Larkman Lane and Larkman mobility hub	Create a new outbound bus lane on the approach to Larkman Lane and improve access to bus services at this location for those on foot and bike. Delays to bus services accessing this mobility hub will be removed.	771,154	645,090
33	Dereham Road / Old Palace Road / Heigham Road	Improve cycle facilities and provide greater priority at the junction to aid bus and cyclist movements through the junction.	402,838	336,984

Reference	Scheme name	Brief description	Total scheme cost £	DfT contribution £
41	Norwich Airport industrial estate link	Provide a new sustainable transport link between the International Aviation Academy / Airport industrial estate) and Norwich International Airport. This link will be for pedestrians, cyclists and buses only and not general traffic.	1,152,931	544,009
42	Cromer Road and Aylsham Road (Fifers Lane – Glenmore Gardens)	Create significant lengths of inbound bus lane on the most congested segment of Cromer Road and Aylsham Road on the direct route from the Airport, Airport Park & Ride site and bus services from North Norfolk without the requirement to remove any general traffic lanes.	463,301	387,563
43	Boundary junction	Change permitted movements through the busy Boundary junction that complement the Cromer Road and Aylsham Road bus lanes scheme. Introduce and designate a new pedalway connection to Mile Cross and Hellesdon facilitated by these changes.	115,638	96,734
44	Cycle and pedestrian crossing of Outer Ring Road (Mile Cross)	Improvements to cycle and pedestrian crossing facilities of the ORR at Mile Cross. This connects with a new pedalway route to Hellesdon via Reepham Road.	333,609	279,072
21	Sprowston Road (Denmark Road - Outer Ring Road)	Provide an outbound (uphill) protected cycle lane alongside new sections of inbound and outbound bus lanes. This will be facilitated by a combination of kerb realignment, narrower traffic lanes and parking relocation to connect to the Broadland Growth Triangle (BGT).	889,624	744,192

Reference	Scheme name	Brief description	Total scheme cost £	DfT contribution £
22	Sprowston Road (Magdalen Road – Denmark Road)	Introduce a new one-way traffic circulation to significantly aid the flow of buses along this main public transport route into the city centre from north Norwich and further afield. This is the most significant cause of bus delay along this corridor. There are significant improvements for pedestrians as cars will park entirely on the carriageway and not half on the carriageway / half on the pavement as presently (due to narrow carriageway widths and two-way traffic flows). Inbound cycling will be safer and more attractive – outbound cycling will be directed onto local quieter road.	918,882	758,936
37	Heartsease Fiveways junction	A redesign of the junction will provide significant improvements for cyclists and pedestrians and enable bus operators to provide more efficient and reliable services. This scheme was originally included in the High package in our November 2019 submission. We have brought this into our Core package based on a prioritising of improvements to cycling post-COVID-19 (this junction has a very poor safety record for cycles) as well as prioritising public transport movements through this junction.	4,437,176	3,711,808
38	Kett's Hill roundabout	Improve safety for cyclists and introduce a bus lane on the city-bound approach. This scheme strongly complements the Heartsease Fiveways junction scheme as they are on the same corridor.	85,968	30,088

A4. Summary of the additional schemes selected in the High package (+£5m):

Reference	Scheme name	Brief description	Total scheme cost £	DfT contribution £
MH7	Thickthorn P&R Phase 2	Expand the existing Park & Ride site by a further 600 spaces in addition to those provided in Phase 1. This will provide additional capacity for journeys to the city centre. We will establish 'Park and Cycle' initiatives, building on the Beryl Bike scheme, implemented using Tranche 1 of TCF, as well as cycling connections to the nearby blue pedalway. Whilst we are confident that Park & Ride will remain an important element of our sustainable transport strategy in the future, the inclusion in the High package of expansion of the site for city centre journeys reflects that the recovery of patronage may take a while to realise.	2,399,543	2,094,436
MH4	Wymondham Rail Station mobility hub	Improve facilities for buses and coaches to adequately serve Wymondham station forecourt, as well as providing Car Club vehicles and cycle share bikes. Discussions with stakeholders identified the priority for Wymondham station was to make it accessible to all users (included in our Core package). These discussions also highlighted that improved interchange facilities would strongly complement making the station accessible, so has been included in our High package.	1,266,884	1,081,099

Reference	Scheme name	Brief description	Total scheme cost £	DfT contribution £
MH22	Mile Cross mobility hub	Co-locate and consolidate all shared transport services to create an improved transport interchange at this busy, out-of-city-centre shopping arcade. Our Core package has focused on the largest transport interchanges (mobility hubs) where their impacts will affect the most users of the network. Outside of these largest transport interchanges, we believe that Mile Cross has the most potential to bring significant benefits by bringing shared transport options together at this location. For this reason, we have included this scheme in our High package.	768,362	655,683

A5. Summary of the schemes removed for the Low package (-£5m):

Reference	Scheme name	Brief description	Total scheme cost £	DfT contribution £
37	Heartsease Fiveways junction	A redesign of the junction will provide significant improvements for cyclists and pedestrians and enable bus operators to provide more efficient and reliable services. This scheme has been removed from the programme for the Low package along with the other scheme on this corridor (Kett's Hill roundabout) to maintain a strategic focus on the four remaining corridors in the scenario of reduced funding being available.	4,437,176	3,711,808
38	Kett's Hill roundabout	Improve safety for cyclists and introduce a bus lane on the city-bound approach. This has been removed for the Low package to reflect that it strongly complements the Heartsease Fiveways junction scheme, which has also been removed.	85,968	30,088
44	Cycle and pedestrian crossing of Outer Ring Road (Mile Cross)	Improvements to cycle and pedestrian crossing facilities of the ORR at Mile Cross. This connects with a new pedalway route to Hellesdon via Reepham Road. This has been removed for the Low package to reflect that there are other walking and cycle improvement schemes that generate more benefits.	333,609	279,072

Reference	Scheme name	Brief description	Total scheme cost £	DfT contribution £
MH10	Norfolk & Norwich University Hospital mobility hub	Provide a new bus interchange close to the outpatients entrance that resolves congestion and reduces the conflict with vulnerable users of the disabled car parking area. Introduce bike share to strengthen the mobility hub provision and increase passenger capacity. This has been removed for the Low package as the hospital's main focus currently is on COVID-19 and the overall recovery and reinstatement of general surgical and medical care. This scheme will be built on hospital (private land) and will require consultation with staff, visitors and numerous stakeholders. We are confident that this scheme is important for the hospital and its users.	1,726,499	1,444,260

SECTION B – The Business Case

B1. Background ("What are the package objectives?")

This revised TCF submission has been reviewed in light of DfT comments on our full November 2019 submission and the current global COVID-19 pandemic that is unfolding. The core outcomes stated in our November 2019 submission remain: facilitating growth and increasing productivity, whilst tackling congestion, carbon emissions and poor air quality. Furthermore, TCF investment is critical at this current time to aiding recovery from COVID-19 and realising these outcomes. Schemes have therefore been identified that can be brought forward to support this recovery and realise early benefits.

The **Transforming Norwich** programme will be delivered through the existing TfN delivery programme. TfN is a partnership between Norfolk County Council (NCC), Norwich City Council, Broadland District Council and South Norfolk District Council and has a strong track record of successfully delivering large transport programmes. **Transforming Norwich** builds on previous successful programmes such as the Cycle City Ambition Grant (CCAG) and is one element of the transport policy work that is currently ongoing across the Greater Norwich Region (GNR). This **Transforming Norwich** programme therefore represents the initial delivery of a much longer-term programme of work and has used evidence from across GNR and the TfN programme to identify the need for investment.

TfN has identified the following issues for **Transforming Norwich** to address:

Issue	Issue to be addressed
Journey time reliability	Norwich is the 18th most congested of 111 urban areas in the UK. Worsening bus punctuality highlights the impact of this.
Commuting	85% of vehicles are single occupancy during weekday morning peak periods. Recent rail investment needs to be supported by onward connections to both the city centre and key employment centres. Bus patronage is growing but it will plateau without significant investment – particularly given the potential COVID-19 impacts. Cycling is growing in Norwich, providing the opportunity to build on this momentum and capitalise on behaviour change resulting from COVID-19.
Economic growth	50% of areas in Norwich are considered to be in the 10% most deprived in the country. There is a lack of public transport connectivity between some areas of population and employment on the edge of the city.

Issue	Issue to be addressed
Housing delivery	Major housing employed growth is planned within the GNR and this will increase the need to travel across the area. The BGT is the largest urban extension in the UK (circa 13,500 homes and 2,600 jobs).
Wider social and economic benefits	Across the GNR there is an ageing population and an average of 19% of people have a long-term health condition or disability.
Carbon emissions	In 2016 Norfolk's transport emissions accounted for 39% of Norfolk's overall CO_2 emissions.
Air quality	Road transport is identified as a major source of air pollution.
Future of mobility	Norwich already has many elements to build upon to prepare and enable the city to be a pioneer in the area of future mobility.

From these issues, the following vision has been identified, which still applies in this resubmission:

"to invest in clean and shared transport, creating a healthy environment, increasing social mobility and boosting productivity through enhanced access to employment and learning".

To deliver this vision, three objectives have been set for the **Transforming Norwich** programme, which still apply for this resubmission:

- Improve people's productivity and social mobility by unlocking access to employment and education opportunities across the GNR;
- Increase the efficiency of travel and transport in the GNR and improve the impact transport has on carbon emissions, air quality and public health;
- Use emerging technology to prepare the GNR for a future of shared and clean mobility.

Option Generation

Our November 2019 submission outlined our approach to evaluating a long list of potential schemes using the Investment Sifting and Evaluation Tool (INSET), which led to the proposals being presented in that application.

In terms of the transition from our November 2019 submission to this revised package, a number of factors have been considered, which include:

- Feedback from DfT on our November 2019 submission;
- Stakeholder feedback regarding their priorities for a reduced funding package;
- Review of corridors and their prioritisation;
- Further assessment of individual schemes in terms of their costs, benefits and knock-on impacts to other modes or areas of the transport network;
- Synergy between our TCF and Future Mobility Zone (FMZ) applications;
- Retention of private-sector investment in upgrades to bus fleet and service provision;
- Recovery of the transport network post COVID-19.

Feedback from DfT on our November 2019 submission

The detailed feedback from DfT on our November 2019 submission has been very useful in terms of highlighting areas where the business case could be strengthened. We have worked closely with DfT on the co-development of our revised submission.

Stakeholder feedback regarding their priorities for a reduced funding package

Given the need for a reduced funding package, we have engaged with stakeholders, District Councils and Councillors to identify key priorities for delivery. This has led to a number of schemes being omitted from our resubmission, although they will still be retained within our longer-term TfN delivery programme. An example of this is the Cross Valley Link, which is of high value, has some challenges in relation to delivery (planning / environmental impact) and it is acknowledged that more work is needed to articulate the potential scheme benefits to a wider audience - this will now be included in a longer-term TfN delivery programme. The revised **Transforming Norwich** programme retains a very strong level of stakeholder support.

Review of corridors and their prioritisation

Given the need for a reduced funding package, we have reviewed the corridors and their prioritisation. This has considered a number of factors, including population density and demographics, committed growth, deprivation, accessibility, access to education and employment, current provision of transport infrastructure and how people are currently travelling.

Further assessment of individual schemes

The requirement to resubmit our application has provided the opportunity to undertake further assessment of individual schemes in terms of their costs, benefits, knock-on impacts to other modes or areas of the transport network and their deliverability. This has led to a better understanding of these factors and the subsequent amendments of several schemes – details of changes to costs are presented in **Section B4**. For example, we are now proposing to remove the scheme in Castle Meadow that aims to deliver bus, cycle and pedestrian improvements as further work on this scheme has shown that we do not think we can design and deliver it within the 3-year delivery timescale of TCF – this remains an important scheme for us and will be included in a longer-term TfN delivery programme.

Synergy between our TCF and FMZ applications

Our November 2019 submission outlined a strong synergy between our TCF and our FMZ applications, recognising that the future of mobility relies on an evolution of the Norwich transport system rather than a revolution. Whilst we were unsuccessful with our FMZ application, opportunities presented by future mobility in Norwich will still be delivered through our approach to 'transforming the passenger experience' as we are retaining technology to improve bus journey times (traffic light priority) and improve customer information at our largest mobility hubs.

Mobility hubs

We have included the term 'mobility hub' in both our November 2019 submission and this resubmission, as we believe there is an opportunity to significantly improve the passenger experience in terms of how people access transport and interchange between modes, particularly shared mobility services – buses, trains, club cars and hire bikes. These places will be well designed so that people feel comfortable, secure and well informed whilst waiting for services to arrive or navigating between services. It will be easy for people to reach these places on foot and by cycle, and we will use the planning system to encourage development that enjoys good access to sustainable transport services. It is recognised that some mobility hubs will be more important than others and will have extra facilities and that whilst some hubs may already exist in some form and will need less to increase their benefit, others will take time to establish, particularly if land acquisition and engagement with developers through the planning process is required.

To reflect the reduced funding available and uncertainty surrounding the speed at which development may come forward in some areas in the post-COVID-19 period, we have focused on the largest and busiest locations for mobility hub investment in this resubmission. Other mobility hub locations will remain within the wider TfN programme and will form a pipeline of future projects that we will look to deliver in the longer term or through alternative funding sources.

Public transport ticketing, data sharing, e-scooters, electrification of modes

Improvements in public transport ticketing technology (capped fares, tap-on/tap-off readers) are not included in our resubmission and we are discussing with operators what options there may be to bring forward their already-committed plans to deliver this. We also know that many more passengers will be using contactless payment, which was strongly encouraged during the COVID-19 lockdown period. Use of data to better understand travel patterns and behaviours, and new mobility technology, such as e-scooters, e-cargo bikes, wireless vehicle charging and electrification of modes, will be considered as we continue to develop our TfN programme. We will also seek funding through alternative sources, both public and private, such as the All Electric Bus Town Fund.

Retention of private-sector investment in upgrades to bus fleet and service provision

First Bus committed to an investment of circa £18m in our November 2019 submission to upgrade their fleet and service provision. For Norwich, such investment would deliver a step change improvement in the delivery of bus services, significantly enhance the public transport offer and reduce harmful exhaust emissions. We have worked closely with First Bus on the preparation of our resubmission, identifying what schemes are critical for them to retain this level of investment.

Recovery of the transport network post COVID-19

Regarding public transport, we are working closely with bus operators to help them get back to a position of being able to run economically viable services. Investment in infrastructure enables more efficient utilisation of their fleet.

Regarding walking and cycling, we are aware from survey data that there has been a significant increase in levels of walking and cycling during the COVID-19 lockdown period, particularly cycling, which has seen increases of 3-4 times pre-COVID-19 levels, mainly off-peak. In our revised **Transforming Norwich** programme, we have looked to bring forward as many walking and cycling schemes as we can to maximise the opportunities to help ‘lock in’ this behaviour change. A co-ordinated and sustained behaviour change programme delivered at the same time as investment in walking and cycling infrastructure will help to transfer some of the observed off-peak increases in walking and cycling to peak time / commuting increases.

Shortlisting of corridors

Our revised programme remains corridor based, supporting essential access to the city centre, as well as supporting transport operators and providing access to key employment and education. A summary of corridors remaining in our submission is outlined below:

Corridor	Reason for retention
City Centre	Access to the city centre is key to the local economy and there has already been significant investment to improve cycle access through the CCAG programme, as well as assist bus access and reliability through prior removal of through traffic. The city centre is designated an Air Quality Management Area (AQMA), and measures are needed to urgently address this. The city centre is key to future economic growth, with nationally recognised technology clusters centred on Norwich's fast-growing digital creative hub, as well as having a rich cultural offer.
Airport to City Centre	This corridor passes through a densely populated area of the city with deprivation. The corridor links the city centre with the Norwich International Airport and International Aviation Academy, and a strategic employment area. The pedalway network suffers from severance caused by major roads. The corridor is a Park & Ride route, as well as serving all public transport services from North Norfolk, but suffers from congestion and delay and a lack of bus priority measures.
Wymondham to City Centre	To the south west of Norwich is a strategic employment area with the NRP that includes research institutes, the hospital and the UEA. The area also has links to the A11 'tech corridor', with wider links to Cambridge and a commuting corridor from Thetford, Attleborough, Wymondham, Hethersett – all important growth areas. In the south west of Norwich, there are already economic initiatives under way to release the economic capacity, important to the local economy. Public transport connections from the NRP, the hospital and UEA to the city centre are not direct and the local road network has congestion and delay, with limited public transport priority.
Sprowston to City Centre	The corridor passes through a densely populated area of the city and is a key corridor to serve a planned urban expansion of 10,000 homes. The pedalway network suffers from severance caused by major roads and the corridor has significant bus journey time reliability problems caused by narrow streets, on-street parking and a lack of bus priority measures. Pedestrian access is hindered in specific locations due to narrow footways and parking.
Easton to City Centre	This corridor has, at one end, the strategic employment area of Longwater and significant new and ongoing housing development. At the other, the corridor links to recent public transport enhancements to aid bus movement around the city centre. The route passes through a densely populated area, part of which has significant deprivation. The corridor has benefited from investment, however problems with congestion and delay on parts of the route remain, which this programme seeks to address to release its potential.

Corridor	Reason for retention
Rackheath to City Centre	This corridor serves growth in the BGT, which is the largest urban extension in the UK (circa 13,500 homes and 2,600 jobs). The majority of outline planning consents across all the sites that make up the BGT have been approved, but it is the detailed applications from developers that are taking more time to come through. There has been an upward curve in the submission, consideration and approval of some of these sites over the last 2-3 years and a number of the sites are now under construction. There are a number of key locations along this corridor where buses are delayed and where there are poor safety records for cycling, such as the Heartsease junction.

Shortlisting of schemes

Based on the factors outlined above, a number of schemes have been removed from the submission. These will remain within the wider TfN programme and will form a pipeline of future projects that we will look to deliver in the longer-term or through alternative funding sources. Schemes omitted are outlined below.

Scheme	Reason for omission
Cross Valley Link	This is a high value scheme. Delivery of this would have restricted the opportunity to deliver the wider benefits across Greater Norwich outlined above within this lower-cost programme. Additionally, there are specific challenges to delivering this scheme, with the risk of not being able to deliver it within the required 3-year window of funding.
Mobility hubs	We have focused on improving interchange between transport modes at the largest and busiest locations. Other mobility hub locations will be developed through subsequent phases of our TfN programme, subject to funding.
Promotion of car sharing	We will continue to work with car sharing providers, such as Liftshare, and stakeholders to identify how best we can work together to reduce single-occupancy vehicles across Greater Norwich. This could consider other external and internal funding options. We are committed to delivering a co-ordinated and sustained behaviour change programme that will encourage a shift to low carbon-emitting forms of transport.
Expansion of car club provision	We will continue to work with Car Club providers, such as Norfolk Car Club, and stakeholders to identify how best we can work together to encourage the use of more sustainable transport options across Greater Norwich. This could consider other external and internal funding options. We are committed to delivering a co-ordinated and sustained behaviour change programme that will encourage a shift to low carbon-emitting forms of transport.
Improved bus ticketing and public transport information	We will continue discussions with bus operators to identify opportunities to bring forward their planned proposals for capped single and multiple operator tickets. We will also look at how best to further develop and promote multi-modal ticketing, such as PlusBus. We are committed to delivering a co-ordinated and sustained behaviour change programme that will encourage a shift to low carbon-emitting forms of transport.
Electrification of Park & Ride	We will look to utilise other funding and delivery options to electrify our Park & Ride fleet, such as through the All Electric Bus Town Fund.
Yarmouth Road corridor	The business case for the delivery of schemes on this corridor was not as strong as those on other corridors. Schemes will be retained and delivered through the wider and longer-term TfN programme.

B2. Strategic Case

Our November 2019 submission presented high-level impacts for the core and secondary objectives of TCF, as well as local challenges and opportunities. The tables below summarise this and outline changes from our original submission, focusing on the Core package.

Carbon Emissions In 2016 Norfolk's transport emissions accounted for 39% of Norfolk's overall CO_2 emissions.	
2019 application	**Revised application**
The six clean transport priority routes will reduce carbon emissions by the introduction of low- / zero-emission buses by around 1,600 tonnes.	The five clean transport priority routes will reduce carbon emissions by the introduction of low-emission buses by around 650 tonnes.
Improved Park & Ride facilities and the development of mobility hubs will enable easy access to shared mobility services – buses, trains, car club vehicles and hire bikes – for onward travel into the city.	An increased capacity Park & Ride facility for access to the NRP and the development of mobility hubs at key locations will enable improved access to shared mobility services – buses, trains, car club vehicles and hire bikes – for onward travel into the city. Additional capacity for Park & Ride for access to the city centre in the High package will further improve access and opportunities for shared mobility services into the city.
A co-ordinated and sustained behaviour change programme will encourage a shift to low carbon-emitting forms of transport.	We remain committed to delivering our revised TCF programme in combination with a co-ordinated and sustained behaviour change programme that will encourage a shift to low carbon-emitting forms of transport. The COVID-19 pandemic has led to closer working between the County Council, Public Health and other community-focused organisations. We will look to build on these relationships going forwards.

Economic Growth

There are areas of deprivation within the city, reflecting its designation as a social mobility 'cold spot' - according to 2019 figures, 50% of areas in Norwich are considered to be in the 10% most deprived in the country. There is also economic buoyancy, particularly in South Norfolk.

There is a lack of public transport connectivity between some areas of population and employment on the edge of the city including the NRP, the hospital and university cluster; Norwich International Airport (including the Airport Industrial Estate and the International Aviation Academy); and some of the other strategic employment sites such as Broadland Business Park.

2019 application	Revised application
The six clean transport priority routes have been chosen to link residents with key employment and educational sites.	Our Core programme resubmission includes measures along five clean transport priority routes.
Particular focus has been given to areas of deprivation to enable access to economic opportunities. Over 31,000 people living in the most and second most deprived quintiles in the UK will have better access to employment and training.	Our revised programme retains a focus on areas of deprivation to enable access to economic opportunities. The corridors retained in the resubmission serve the areas of most deprivation. Over 31,000 people living in the most and second most deprived quintiles in the UK will have better access to employment and training.
Norwich International Airport is located on one of our priority corridors and a mobility hub is proposed to serve the airport.	Norwich International Airport is located on one of our priority corridors within our revised programme. Improved cycle, pedestrian and bus access to the airport from the International Aviation Academy and adjacent industrial estate is included in our programme. The mobility hub at the airport will be delivered through the wider and longer-term TfN programme and will be part of the Surface Access Strategy for the airport.

Journey Time Reliability Norwich is the 18th most congested of 111 urban areas in the UK. Worsening bus punctuality highlights the impact of this.	
2019 application	**Revised application**
The **Transforming Norwich** programme includes measures along the six clean transport priority routes and at key hotspots to alleviate congestion and prioritise clean and shared transport modes to make them more competitive than single-occupancy vehicle use in terms of time, cost and convenience.	Our Core programme resubmission includes measures along five clean transport priority routes.
6.6 miles of new dedicated bus lanes will be provided.	3.5 miles of new dedicated bus lanes will be provided.
Bus stops through the main bus thoroughfare in the city centre are being realigned to reduce delays to buses accessing and egressing stops and delaying each other. In total, over 80 bus stops will be upgraded.	We are retaining bus stop improvement works at St Stephen's Street and Red Lion Street in the city centre, as well as at the largest mobility hubs. In total, over 29 bus stops will be upgraded and 5 new bus stops added.
99 traffic signal-controlled-junctions will be upgraded to provide priority for buses.	We are retaining the upgrade to 99 traffic signal-controlled junctions to provide priority for buses.
Pinch points on the network are being tackled to ensure buses are not held up compared to general traffic.	Our reduced programme of work doesn't allow as many pinch points on the network to be tackled. However, we are focusing on those locations that have the greatest impact on buses compared to general traffic.
General traffic is being re-routed to separate it from buses at key junctions.	The key locations where general traffic and buses are being separated are retained in our resubmission.

Commuting	
Single-occupancy vehicle use on all key access routes into Greater Norwich is high, with 85% of vehicles containing one person during weekday morning peak periods. This situation is inefficient in terms of how the transport network is utilised. Recent investment in rail service and rolling stock is welcomed but needs to be supported by onward connections to both the city centre and key employment centres. Due to its location on the edge of the city centre, connectivity of the rail station is a key challenge.	
2019 application	**Revised application**
Our programme is based around the delivery of measures that prioritise clean and shared transport and that connect key employment and educational sites, offering good transport choices to residents and employees.	We remain committed to a revised programme which is based around the delivery of measures that prioritise clean and shared transport and that connect key employment and educational sites, offering good transport choices to residents and employees. The COVID-19 pandemic has led to closer working between the County Council, Public Health and other community-focused organisations. We will look to build on these relationships going forwards.
The rail station will be better connected to the city through the provision of new mobility hub.	The rail station mobility hub is retained in our resubmission and remains an important focus to improve the rail connection with the city centre.
New segregated cycle facilities and improved pedestrian facilities will build on the strong existing culture of walking and cycling, particularly associated with the development of mobility hubs.	Our resubmission still aims to build on the strong existing culture of walking and cycling in the city and recent investment through the CCAG programme. The number of mobility hubs is being reduced to cover key areas and key transport hubs. Delivery of mobility hubs across the wider Greater Norwich area will be through the wider and longer-term TfN programme. Our submission includes 4.0 miles of new cycle lanes are added of which 1.0 mile will be new segregated cycle lanes.
A co-ordinated and sustained behaviour change programme delivered in parallel will tackle single car occupancy and encourage a shift to more sustainable modes.	A co-ordinated and sustained behaviour change programme delivered in parallel will tackle single car occupancy and encourage a shift to more sustainable modes. The COVID-19 pandemic has led to closer working between the County Council, Public Health and other community-focused organisations. We will look to build on these relationships going forwards.

Wider Social and Economic Benefits

There is an ageing population, particularly in the neighbouring local authorities.

Across Greater Norwich, an average of 19% of people have a long-term health condition or disability, which places considerable strain on health and supporting networks.

Indicators for health could be improved in all areas of Greater Norwich, but particularly in South Norfolk and Broadland.

2019 application	Revised application
Across all of the cost programmes put forward, younger and older people will benefit most as a result of the proposed investment in walking, cycling and public transport infrastructure.	In our resubmission younger and older people will still benefit the most.
The heart of the city centre will be transformed in its look and feel, creating an environment that is clean, welcoming and accessible for all. 57,000sqm of public realm area will be improved.	The heart of the city centre will still be transformed in its look and feel, creating an environment that is clean, welcome and accessible for all. The area of public realm improved will be 37,500 sqm.
A network of 33 mobility hubs will make it convenient for all people, irrespective of their physical capabilities, to reach these places on foot and by bicycle – 53,000 people live within 400m of a mobility hub. Hubs will be well designed so that people feel comfortable, secure and well informed whilst waiting for services to arrive or navigating between them.	Improvement works at 8 mobility hubs will make it convenient for all people, irrespective of their physical capabilities, to reach these places on foot and by bicycle – 12,491 people live within 400m of these hubs. In our resubmission, we have focused only on the larger hubs which will be accessed by the largest number of people. Development of the wider network of hubs presented in our November 2019 application will be progressed in our wider Transport for Norwich programme, subject to funding.
A co-ordinated and sustained behaviour change programme will encourage a shift to more active transport. Public Health will be a key partner in delivering this.	We remain committed to the delivery of a co-ordinated and sustained behaviour change programme. As well as Public Health, we are also engaging with other partners, including Active Norfolk, Pushing Ahead (utilising Access Funding from DfT) and AtoBetter (utilising residential developer funding from travel planning). The COVID-19 pandemic has seen significant increases in the number of people walking and cycling across Greater Norwich (3-4 x increase), and discussions with the partners outlined above is currently focused on how this behaviour change can be built upon and 'locked in' going forwards. Our behaviour change programme will also build on our success from the CCAG programme, which has seen an increase in cycling of circa 40%.

Housing Delivery

Major housing and employment growth is planned within the GNR and this will increase the need to travel across the area.

The BGT is the largest urban extension in the UK (circa 13,500 homes and 2,600 jobs). The majority of outline planning consents across all the sites that make up the BGT have been approved, but it is the detailed applications from developers that are taking more time to come through.

2019 application	Revised application
The six clean transport priority routes are connecting new housing developments across the GNR with economic and social opportunities so that this growth is achieved sustainably.	Our Core programme resubmission includes measures along five clean transport priority routes.
Clean and shared transport will serve the BGT, supported by a sustained behaviour change campaign, to ensure sustainable travel habits are supported as new residents move into the area.	The scheme at Heartsease to redesign the junction to provide a more cyclist-friendly geometry, provide formal crossing opportunities for pedestrians and priority for bus movements has been brought into the Core package for the resubmission (was in the High package in November 2019).
The benefits of **Transforming Norwich** will be complementary to the Housing Infrastructure Fund (HIF) funding but will not duplicate them. Furthermore, the proposals would provide alternatives to the use of the private car ahead of developments being built, which is exactly the offer that has historically not been possible.	We were unsuccessful with securing HIF funding. However, we are committed to working with developers and transport providers, as well as through infrastructure investment we are seeking to secure in this application, to ensure that clean and shared transport will serve the BGT. Our sustained and co-ordinated behaviour change campaign will ensure sustainable travel habits are supported as new residents move into the area.

Air Quality

Road transport is identified as a major source of air pollution.

Single-occupancy vehicle use on all key access routes into Greater Norwich is high, with 85% of vehicles containing one person during weekday morning peak periods. This situation is inefficient in terms of how the transport network is utilised, contributing to congestion and poor air quality.

2019 application	Revised application
The six clean transport priority corridors will deliver investment in clean vehicle technology and improvements in the city centre will encourage more active modes of transport to be adopted. Air pollution in the most polluted areas in Norwich will be reduced by more than 15%.	Our Core programme resubmission includes measures along five clean transport priority routes. Within the most polluted areas in Norwich city centre, air pollution will reduce significantly: up to 17% at Norwich rail station, up to 16% on Chapel Field Road and up to 11% at Castle Meadow. Greenhouse gas emissions will be reduced by around 650 tonnes of carbon dioxide equivalent annually within the City region.
A co-ordinated and sustained behaviour change programme will encourage a shift to more sustainable transport modes, further improving air quality.	We remain committed to the delivery of a co-ordinated and sustained behaviour change programme. As well as Public Health, we are also engaging with other partners, including Active Norfolk, Pushing Ahead (utilising Access Funding from DfT) and AtoBetter (utilising residential developer funding from travel planning). The COVID-19 pandemic has seen significant increases in the number of people walking and cycling across Greater Norwich (3-4x increase), and discussions with the partners outlined above is currently focused on how this behaviour change can be built upon and 'locked in' going forwards. Our behaviour change programme will also build on our success from the CCAG programme, which has seen an increase in cycling of circa 40%.

Future Mobility	
Norwich already has many elements to build upon to prepare and enable Norwich to be a pioneer in the area of future mobility, including its separate transport operating systems, its established and successful car club operating in Norwich, bike share scheme and opportunities in the area of public transport ticketing.	
2019 application	**Revised application**
The **Transforming Norwich** programme has a strong synergy with the FMZ, recognising that the future of mobility relies on an evolution of the Norwich transport system rather than a revolution.	Whilst we were unsuccessful with our FMZ application, opportunities presented by future mobility will still be delivered through our approach to 'transforming the passenger experience' and we are retaining technology to improve bus journey times (traffic light priority) and improve customer information at our largest mobility hubs. Improvements in public transport ticketing technology (capped fares, tap-on/tap-off readers) are not included in our resubmission and we are discussing with operators what options there may be to bring forward their already-committed plans to deliver this. Use of data to better understand travel and new mobility technology such as e-scooters, e-cargo bikes, wireless vehicle charging and electrification of modes will be considered as we develop our Transport for Norwich Strategy and incorporate future mobility initiatives.
The opportunities presented by future mobility will be utilised through the 'transforming the passenger experience' theme. This includes: using technology to improve bus journey times, improving customer communication at mobility hubs and utilising public transport ticketing technology.	In our revised application, we have focused only on the larger hubs that will be accessed by the largest number of people. Development of the wider network of hubs presented in our November 2019 application will be progressed in our wider Transport for Norwich programme, subject to funding. We have retained a significant private-sector investment from First Bus in new and refurbished buses across their entire Norwich fleet. All vehicles would be fitted with 'next stop' audio and visual announcement systems and USB charging points, which represents a substantial upgrade in the passenger experience.

B3. Economic Case
B3.1 Economic Narrative and Option Development

We have outlined in **Section B1** the existing problems that our proposal seeks to overcome and how this would be achieved through the schemes we are presenting. Also presented is the option development process and how schemes were shortlisted and selected. The table below summarises this.

Summary of the key issues	How this has formed our programme objectives	How our programme responds to these objectives	Identified benefits of the programme
- Major housing and employment growth is planned within the GNR. - There are areas of deprivation within the city. - There is a lack of public transport connectivity to some areas of the city, particularly key employment areas on the edge of the city. - Bus patronage is growing but bus operators are simply investing to stay still. - Cycling is growing in Norwich, providing the opportunity to build on this momentum. - There is an ageing population, particularly in the neighbouring local authorities, as well as a significant student population in Norwich. - Road transport is identified as a major source of carbon emissions and pollution. - Norwich displays higher-than-average walk and cycle to work trips and more households do not own a car in Norwich than South Norfolk and Broadland. - Worsening bus punctuality highlights the impact of congestion on journey time reliability. - Due to its location on the edge of the city centre, connectivity of the rail station is a key challenge. - Single-occupancy vehicle use on all key access routes into Greater Norwich is high (85%). - Norwich International Airport plays a significant role in the economy but needs improved surface transport access. - There is an opportunity to utilise existing transport operating systems to capitalise on future mobility opportunities.	- Scheme objective 1: Improving people's productivity and social mobility by unlocking access to employment and education opportunities across the city region. - Scheme objective 2: Increasing the efficiency of travel and transport and improve the impact transport has on carbon emissions, air quality and public health. - Scheme objective 3: Using emerging technology to prepare the city region for a future of shared and clean mobility.	- Transforming the network. - Transforming the city centre. - Transforming the passenger experience.	- Unlocks access to employment and education opportunities across the GNR – 31,000 people in the most deprived areas will have better access to employment and training. - Reduces greenhouse gas emissions by around 650 tonnes of carbon dioxide equivalent, or over 0. 5% of road transport emissions in the Norwich City Council area. - Reduces air pollution by up to 17% of the current NO_2 averages in some of the most polluted parts of the city. - Particularly benefits young people, older people, disabled people, BAME communities and people living in deprived areas. - Supports emerging technologies for a future of shared and clean mobility. - Is Very High VfM for all three packages. The Benefit to Cost Ratio is 7. 26 for the Low package, 6. 73 for the Medium package and 6. 13 for the High package.

B3.2 Economic Impacts

Resolution of the Clarification Questions

The items raised in the DfT clarification questions have been addressed through a process of co-development, in which our draft responses were provided to DfT and then discussed with DfT at a number of separate discussions. We found this approach to be very beneficial and are not aware from subsequent discussions with DfT that any key concerns remain. Our responses are provided in **Annex 1**, along with additional materials that were produced to support our responses (such as a revised technical note on the highway base year validation). The clarification questions and responses have not led to any changes to the modelling and appraisal methodology.

Changes to the modelling since November 2019

The modelling and appraisal have been updated to reflect the revised packages of schemes. In addition, several additional improvements have been made to the modelling. These are described below for each mode.

Walk / cycle

For the November 2019 submission, the walk / cycle schemes were assessed at a package level. For this resubmission, each walk / cycle scheme has been assessed individually. This has provided a greater degree of flexibility to select the parameters in the Active Mode Appraisal Tool (AMAT) most appropriate for each individual scheme, and individual scheme reports show the value of individual interventions. In addition, a larger dataset of local walking / cycling counts was used with over **84%** of scheme assessments now using local data.

Bus

A further workshop was held with stakeholders from NCC and First Bus in Norwich to review the data and assumptions for each bus scheme in the revised Core package. The following refinements were made to the assumptions for a number of schemes as follows:

- Grapes Hill Roundabout – journey time savings for buses were updated to reflect the microsimulation modelling of scheme options;
- Norwich Rail Station – additional journey time savings have been included to reflect that buses would no longer be required to enter / exit the station forecourt (they will stop on Thorpe Road adjacent to the station at an improved interchange);
- Thorpe Road (Clarence Road – Carrow Road) - the off-peak time has been reduced* to reflect the removal of the traffic signal;
- Newmarket Road (Eaton Road – Christchurch Road) - the off-peak time has been reduced* to reflect the removal of the traffic signals;

- Dereham Road / Breckland Road (including mobility hub) – journey time savings included for bus services that currently run through the Costessey and Bowthorpe residential area, which will be re-routed onto the bus gate bypass;
- Dereham Road / Larkman Lane and Larkman mobility hub - the off-peak time has been reduced* to reflect the bus priority at the traffic signals;
- Dereham Road / Old Palace Road / Heigham Road - the off-peak time has been reduced* to reflect the bus priority at the traffic signals;
- Bus priority at 12 signalised junctions has been included explicitly by assuming a 5-second saving per bus at each location. Although we are proposing to upgrade 99 junctions so they have the ability to provide enhanced priority for buses, the 12 junctions referred to here are those where we believe the impacts will be most relevant in terms of traffic modelling.

(*) reducing the off-peak time translates to an increased journey time saving for the scheme, because delay (that the scheme removes) has been calculated as the difference between the peak time and the off-peak time.

Journey quality benefits were derived by applying the generalised time savings provided in TAG databook M3. 2. 1 to the bus stops that will be upgraded and the bus stops that will be part of a mobility hub. In the November 2019 submission, these generalised time savings were not included in the bus demand response, and therefore represented a conservative estimate of the impact that journey quality has on increasing bus demand. For this resubmission, the journey quality generalised time savings have been included in the demand model.

Highway

The highway modelling has been updated to reflect the revised packaging of schemes and changes to scheme designs where these have evolved since the first submission.

The underlying highway model is unchanged except for some minor network adjustments to reduce unrealistic benefits and disbenefits related to model noise.

The Do Something model scenarios now include traffic signal timing changes reflecting anticipated impacts due to bus priority at a number of signal junctions throughout the city. To model the changes to signal timings, automated signal optimisation within the model has been disabled.

The supporting documentation for the highway modelling has been updated to reflect the changes above and to provide further clarity on highway model validation.

Level 2 and Level 3 benefits

A proportionate approach has been taken to adjust the Level 2 and Level 3 benefits to reflect the revised Core package.

The list of development sites within 800m of the TCF schemes has been updated to reflect the revised package.

In addition, the Level 2 and 3 impacts have been presented at the gross level, rather than at the net level. This means they represent the *total* amount of housing, jobs and gross value added (GVA) associated with the development sites, rather than an amount estimated to be dependent on the TCF package. This is because, although the TCF package is likely to contribute to the success of the development sites, there is insufficient evidence at this stage to determine whether a development is dependent on the TCF package or not.

Major impacts of the schemes

The impacts of each individual scheme has been assessed for bus schemes and walk / cycle schemes. For walk / cycle schemes, individual Active Mode Appraisal Tool (AMAT) assessments were undertaken. For bus, the package-level benefits were apportioned across individual schemes using a rule of a half (ROH) calculation, based on the time savings and passenger demand at each scheme location. Whilst there are limitations with this approach, it provides a reasonable assessment of the relevant benefits of each bus scheme.

It is more difficult to assess the impact that each individual scheme has on the highway network. The schemes have been modelled at a package level in the highway model, and each scheme has wider knock-on impacts due to the effects of re-routing and congestion feedback. However, ROH plots have been produced that illustrate the locations of benefit and disbenefit on the highway network, and further, more detailed investigations into the highway model have been undertaken. This analysis has supported the development of a narrative of the impacts that each individual scheme is expected to have on the highway network. The ROH plots and the narrative of the impacts of each scheme on the highway network are presented in **Annex 8** and **Annex 3** respectively.

At an overall package level, the demand response for the Core scenario from the November 2019 submission has been compared to the May 2020 submission in the table below.

Level 1 Benefits

The Level 1 Present Value of Benefits (PVB) by mode are presented in the table below, comparing the benefits of the November 2019 submission against the revised packages in the May 2020 resubmission.

The circa £18m contribution from First Bus has been excluded from the appraisal in the May 2020 resubmission. The benefit of the fleet upgrade associated with the circa £18m investment is not captured within the appraisal (this is true of both the

November submission and the May resubmission), and therefore the cost should also be excluded. Private-sector investment is represented as a cost (negative benefit) within the PVB, therefore excluding First Bus's contribution from the appraisal has the effect of increasing the PVB for bus.

Level 1 Present Value of Benefits (£000, 2010 prices discounted to 2010)

	Nov 2019 submission				May 2020 resubmission			
	Bus	Walk / Cycle	Highway	Total PVB	Bus	Walk / Cycle	Highway	Total PVB
Low	91,299	114,735	-94,033	112,001	145,460	157,246	-64,231	237,652*
Core	105,679	116,940	-91,544	131,075	152,853	161,170	-50,298	262,902*
High	94,705	127,982	-91,506	131,181	153,241	163,691	-50,298	265,812*

(*) Total PVB also includes £0. 8m private sector contributions as a cost (negative PVB)

The rationale for the changes in benefits between the November 2019 and May 2020 appraisal is provided below:

Bus

- Removal of the £18m private-sector cost related to First Bus;
- Inclusion of quality benefits in the demand response calculations;
- Changes to schemes and scheme assumptions listed above, most notably Grapes Hill Roundabout which accounts for 39% of the bus benefits in the resubmission;
- Benefits for many of the schemes that have been removed in the resubmission were not captured in the previous submission.

Walk / Cycle

- Schemes have been modelled individually in an AMAT, which allows journey quality benefits to be captured more accurately;
- New local count data has allowed more accurate assessment for most schemes, particularly schemes in the city centre;
- The revised package has focused on the strongest walking and cycling schemes.

Highway

There have been a number of adjustments made to the highway modelling and it is the combined effect of these changes that has led to the variation in total highway user benefit.

- Reallocation of schemes amongst model scenarios according to revised packaging. This is likely to have had a mixture of positive and negative impacts to the highway PVB.
- Inclusion of 4 additional schemes in the model as follows:
    - Bus priority at traffic signal junctions (12 junctions altered where it was felt that bus priority would have a material impact to other highway

users) – overall this is likely to have had a negative impact to the PVB. For the other junctions where traffic signal priority for buses will be activated, impacts on general traffic and buses are considered too low to have an impact on the highway modelling.
    - King Street (changes to traffic flows and introduction of one-way flow).
    - Dereham Road / Bowthorpe Road roundabout bus crossover and mobility hub scheme.
    - St Stephen's Street / Red Lion Street.
- Removal of the following 5 schemes from the programme – this is likely to have increased highway PVB as these schemes had adverse impacts to highway users previously:
    - Chapel Field North / East - scheme no longer promoted due to the benefits derived from Grapes Hill scheme.
    - Thorpe Road - Yarmouth Road (Heathside Road - School Lane) - this corridor has been removed from our programme.
    - Yarmouth Road (Girlings Lane - School Avenue) - this corridor has been removed from our programme.
    - Yarmouth Road (School Avenue - Pound Lane) - this corridor has been removed from our programme.
    - Plumstead Road / Woodside Road - this scheme has been removed from our programme but will be considered in our wider Transport for Norwich programme.
- Coding changes to reflect the design evolution of 6 schemes as follows:
    - Foundry Bridge Rail Station mobility hub.
    - Thorpe Road (Clarence Road - Carrow Road).
    - Thickthorn Park & Ride.
    - Sprowston Road (Magdalen Road - Denmark Road).
    - Newmarket Road (Eaton Road - Christchurch Road).
    - City centre eastbound through-traffic reduction (including reversal of one-way direction on Muspole Street).
- Improvements to the coding of 6 schemes that have been retained, including:
    - Heartsease Fiveways junction.
    - Grapes Hill Roundabout - increased capacity of Convent Road arm so that the model better reflects microsimulation modelling that was undertaken when developing the scheme.
    - Dereham Road / Larkman Lane and Larkman mobility hub.
    - Boundary Junction.
    - Kett's Hill roundabout
    - Dereham Road (Longwater Lane – Wendene).
- Disabled global automated signal optimisation to enable bus priority at signals to be modelled.

Level 2 and 3 Benefits

The residential and employment sites within the **Transforming Norwich** study area are anticipated to provide the following benefits:

- Approximately 12,400 new housing units;
- Approximately 4,600 gross jobs and £243. 3m gross GVA per annum.

At this stage, it has not been possible to assess the proportion of these developments that are dependent on the TCF packages of schemes, however the TCF package is likely to contribute to their success.

Scheme costs

Since the November 2019 business case submission, a significant amount of further scheme development has been carried out. Whilst compiling this revised business case, we have taken the opportunity to further refine scheme costs through discussions with our contractors and stakeholders, and, in some instances, the scope of some of the schemes has been changed as a result of further scheme development.

Other factors have been considered when reviewing scheme costs, such as the impact of changes to contractor working practices in light of COVID-19, particularly around social distancing. We have worked closely with our contractor, Tarmac, on this and have incorporated feedback from the early stages of resuming construction work following the relaxation of COVID-19 lockdown. These working practices, and their impacts on scheme delivery costs, will be reviewed regularly. We have also considered the Building Cost Information Service (BCIS) index.

We have reviewed the scope of schemes to ensure that they maximise the potential benefit of the scheme on both active travel and public transport, whilst ensuring that any impact on general traffic, such as through reallocation of road space, is at an acceptable level. Where there has been a change in scheme cost of more than 25% between our November 2019 submission and this resubmission, this information is presented in **Section B4**.

The Present Value of Costs (PVC) are presented in the table below, comparing the PVC for the November 2019 submission against the PVC for the revised packages in the May 2020 resubmission.

Present Value of Costs (£000, 2010 prices discounted to 2010)

	Nov 2019 submission	May 2020 resubmission
Low	67,711	32,743
Core	84,563	39,037
High	145,871	43,338

Key uncertainties and sensitivity tests

Bus demand

The long-lasting impact of COVID-19 on travel behaviour and travel demand is unknown. Despite the strong growth in bus demand in Norwich seen in recent years, it is possible that demand for public transport may not fully recover to pre-COVID-19 levels for some time. As agreed with DfT, a sensitivity test has been undertaken in which the demand for bus travel is 20% lower than forecast in the Core scenario. The impact is a reduction of 20% to the bus PVB, which equates to a 12% reduction to the overall PVB, and a reduction in the BCR from 6. 73 to 5. 95 relative to the Core scenario. This indicates that the package still offers Very High VfM in a scenario with reduced demand for bus travel.

Sensitivity test – 20% reduction in bus demand (£000, 2010 prices discounted to 2010)

	PVB	PVC	BCR
Core	262,902	39,037	6. 73
Sensitivity test – 20% reduction in bus demand	232,331	39,037	5. 95
Difference	-30,571 (-12%)	0	-0. 78

First Bus investment

As agreed with DfT a sensitivity test has been carried out to determine the effects of the circa £18m contribution from First Bus being excluded from the appraisal in the May 2020 resubmission. This scenario includes private-sector investment represented as a cost (negative benefit) within the PVB without the additional benefit that this investment brings being included within the PVB. The results of this sensitivity test are summarised below and indicate that the package still offers Very High VfM.

Sensitivity test – First Bus investment included in the appraisal (£000, 2010 prices discounted to 2010)

	PVB	PVC	BCR
Core	262,902	39,037	6. 73
Sensitivity test – First Bus investment included	244,641	39,037	6. 27
Difference	-18,261 (-7%)	0	-0. 46

Updated AST, AMCB, TEE and PA tables

Updated AST, AMCB, TEE and PA tables are provided in **Annexes 4, 5, 6 & 7**. Note that journey quality benefits for bus are captured within the Economic Efficiency values in the AMCB, rather than the Journey Quality values.

B3.3 Value for Money (VfM)

The monetised Level 1 economic benefits show that the Core programme produces an initial Benefit to Cost Ratio (BCR) of 6. 73 and a Net Present Public Value (NPPV) of £224m from a PVC of £39. 0m (2010 prices, discounted to 2010). According to the DfT Value for Money Framework the BCR of 6. 73 yields **Very High** VfM.

In the case of **Transforming Norwich**, a number of factors justify looking beyond the standard BCR to determine the scheme's VfM, including the importance of the strategic role the programme will play in unlocking and supporting future housing and economic growth, as well as the impacts on improved mobility, mode shift towards public transport and active transport modes, and the impact on air quality and greenhouse gases.

The Appraisal Summary Table (AST) is included in **Annex 4** and provides details of the overall impacts of the scheme. These include both qualitative and quantitative benefits.

Tables presenting the VfM statements for the Low, Core and High packages are presented below, along with a narrative on how the removal and addition of schemes in the Low and High packages affects this. All three packages represent **Very High** VfM and the Core package provides the **highest overall gain in public value** of all three packages, with a NPPV of £224m.

Low:

Present Value of Benefits	237,652
Present Value of Costs	32,743
Net Present Value	204,909
Initial Benefit to Cost Ratio (excluding reliability, wider economic benefits etc)	7. 26
Adjust Benefit Cost Ratio	n/a
Estimated Value for Money category (based on both monetised and non-monetised impacts)	Very high

Note: An adjusted Benefit Cost Ratio has not been provided. This approach was discussed with DfT during the co-development.

Core:

Present Value of Benefits	262,902
Present Value of Costs	39,037
Net Present Value	223,865
Initial Benefit to Cost Ratio (excluding reliability, wider economic benefits etc)	6. 73
Adjust Benefit Cost Ratio	n/a
Estimated Value for Money category (based on both monetised and non-monetised impacts)	Very high

Note: An adjusted Benefit Cost Ratio has not been provided. This approach was discussed with DfT during the co-development.

Compared to the Low package, the Core package has four additional schemes.

These include the:

- New transport interchange at the hospital;
- New pedestrian and crossing facilities on the ORR;
- Bus priority and cycle improvements at Kett's Hill;
- A junction redesign at Heartsease to provide a more cyclist-friendly geometry as well as formal crossings for pedestrians and priority for bus access.

The existing Heartsease roundabout is a key scheme and is currently an obstruction on what would otherwise be a well-used, direct cycle link into the city centre from this expanding residential area, resulting in cyclists being advised to use other less direct routes. This junction is an accident 'hotspot' and there have been 14 slight accidents and 1 serious accident at this site (July 2014 to June 2019), with the dominant accident type being drivers failing to give way to 2-wheeled vehicles. Improving facilities for cyclists at this location will enable improved active travel opportunities for the proposed housing development to the east of the city and will strongly complement the nearby cycle and pedestrian improvement scheme at St Williams Way which is being delivered through TCF Tranche 1 funding. Additionally, the First Bus 'Red Route' passes through this junction three times during each journey resulting in significant delays to public transport passengers. An improvement to public transport services moving through this junction will enable a significantly improved level of service to this key development area. The inclusion of this scheme strongly complements other TCF improvements on the western side of the city on the Easton to city centre corridor, enabling bus service frequencies on the 'Red Route' to be increased from 8 to 10 buses per hour and an investment in a fleet of 19 new vehicles.

The provision of a new transport interchange at the hospital will be a step change for patients, staff members or visitors accessing the hospital using active modes or public transport. The existing interchange is of a poor standard and of insufficient capacity and is situated in a confined plaza creating a local atmosphere of poor air quality. Local air quality issues are exacerbated by the effects of slow moving vehicles which are unable to wait or park adequately to enable passengers to safely board from the footpath. The new interchange would enable buses to stop and wait in an area with improved local air quality creating a safer and more appealing place for passengers to wait for, board and alight public transport. The interchange would also include facilities to hire a bike or 'e' bike as one of the key hubs implemented as part of our TCF Tranche 1 funded cycle hire scheme, presenting options for onward travel using active modes.

The bus priority and cycle improvement scheme at Kett's Hill strongly complements the proposed works at the Heartsease junction, as they are located on the same transport corridor and are adjacent junctions.

Improvements to the cycle and pedestrian crossing facilities on the ORR will connect with a new pedalway route to Hellesdon via Reepham Road.

High:

Present Value of Benefits	265,812
Present Value of Costs	43,338
Net Present Value	222,474
Initial Benefit to Cost Ratio (excluding reliability, wider economic benefits etc)	6. 13
Adjust Benefit Cost Ratio	n/a
Estimated Value for Money category (based on both monetised and non-monetised impacts)	Very high

Note: An adjusted Benefit Cost Ratio has not been provided. This approach was discussed with DfT during the co-development.

The focus of the additional schemes included in the High package is on improved facilities for multi-modal travel options. Additional capacity to cater for travel into the city centre at Norwich's key Park and Ride site at Thickthorn will further enhance Park & Ride on this important corridor which links to London, Cambridge as well as the UEA and NRP. Linked to this will be an improved public transport interchange on this corridor at Wymondham Rail Station which has a direct rail link to Cambridge. This scheme will build upon the step-free access scheme which is included in the Low and Core packages creating an excellent quality accessible transport interchange at a critical location on this technology corridor. Whilst we are confident that Park & Ride will remain an important element of our sustainable transport strategy in the future, the inclusion in the High package of expansion of the site for city centre journeys reflects that the recovery of patronage may take a while to realise.

In addition, a key mobility hub will be delivered at Mile Cross in Norwich enabling users to utilise a range of public transport services to access employment, training and education from the north of the city.

Opportunities to hire a bike or 'e' bike will be included at each of these three key interchanges implemented as part of our TCF Tranche 1 funded cycle hire scheme, presenting options for onward travel using active modes.

B4 Financial Case

Cost differences

The table below summarises where scheme costs have changed by more than 25%.

Scheme name	Cost in 2019 submission (£)	Cost in resubmission (£)	Reason for difference
St Stephen's Street	8,202,600	6,116,073	Castle Meadow has been removed from these proposals and will be picked up in the longer-term Transport for Norwich programme.
Thorpe Road (Clarence Road – Carrow Road)	551,042	820,150	Scope of works has increased following further assessment work.
Grapes Hill Roundabout	82,800	333,609	Scope of works increased to improve cycling and walking provision at this busy junction.
Tombland	1,780,833	2,729,350	This is a proposed early delivery scheme (2020 / 2021) and close engagement with the contractor, detailed site survey data and further engagement with stakeholders has identified areas where additional spend is needed to maximise benefits.
Norwich Bus Station mobility hub	117,679	437,043	This scheme will benefit from the provision of additional digital signage and further thought has been given to how pedestrian access to the station can be improved and the Norwich Bus Station given more prominence (and not being tucked away from sight).
Wymondham Rail Station accessibility improvements and mobility hub	1,121,239	2,130,134	This scheme has now been split into separate elements for the station accessibility and mobility hub. Delivering improved access to the Cambridge-bound platform, which is currently inaccessible for those with impaired mobility or heavy luggage is the priority and is in the Core package (£863,250). Improving the interchange at the station between modes is in the High package (£1,266,884).

Scheme name	Cost in 2019 submission (£)	Cost in resubmission (£)	Reason for difference
Thickthorn P&R	3,686,600	Phase 1 2,780,000. Phase 2 2,399,543	This scheme has now been split into two options: Phase 1 is in the Low and Core packages whilst Phase 2 will be implemented in the High package.
South Park Avenue and Unthank Road	1,066,543	467,074	We are focusing on elements of the scheme that reduce delays to buses and improve cycle flow. The Unthank Road mobility hub will be picked up in the longer-term Transport for Norwich programme.
Newmarket Road (Eaton Road – Christchurch Road)	1,726,516	1,065,814	The mobility hub at this location has been omitted and will be included in the longer-term Transport for Norwich programme.
Dereham Road/Richmond Road	291,490	402,838	Scope of works has increased following further assessment work.
Dereham Road / Breckland Road with Costessey & Bowthorpe mobility hub	3,106,533	4,089,522	Scope of works has increased following further assessment work.
Earlham Green Lane – Marriott's Way	557,600	352,442	Traffic calming and cycle track widening works have been removed as alternative funding has been identified to deliver these, and these are already programmed for delivery.
Marriott's Way to Hellesdon Road	101,500	227,648	The surface specification has been improved to make this a solid rather than compacted surface, which is better for cycling and walking and provides a higher-quality surface for a longer period of time.
Dereham Road / Old Palace Road / Heigham Road	321,500	402,838	Scope of works has increased following further assessment work.
Norwich Airport Access – industrial estate link	2,002,267	1,152,931	Complementary works to provide bus priority work elsewhere within the Airport industrial estate will be picked up in the longer-term Transport for Norwich programme.

Scheme name	Cost in 2019 submission (£)	Cost in resubmission (£)	Reason for difference
Boundary junction	52,133	115,638	Further scheme feasibility work has been undertaken, which has identified additional costs that need to be taken into consideration.
Cycle and pedestrian crossing of Outer Ring Road (Mile Cross)	481,033	333,609	Further scheme feasibility work has identified an alternative location for this pedestrian and cycle crossing.
Mobility hubs at Vulcan Road and Mile Cross	1,294,579	768,362	The Vulcan Road mobility hub will be picked up in the longer-term Transport for Norwich programme.
Sprowston Road (Denmark Road – Outer Ring Road)	1,412,800	889,624	Further scheme feasibility work has been undertaken, which has enabled costs to be refined.
Sprowston Road (Magdalen Road – Denmark Road)	237,200	918,882	Scheme estimate refined following development of junction modifications.
Heartsease Fiveways junction	1,635,000	4,447,176	The estimate provided in the November 2019 submission was based on a previous design option that is no longer considered appropriate. We now recognise that a larger and more complex scheme is required to properly address the cycle and pedestrian provision, as well as improving public transport movement at this site. This requires the acquisition of third party land from a number of different land owners. This is reflected in the revised cost of this scheme.
Kett's Hill roundabout	52,033	85,968	Further scheme feasibility work has been undertaken, which has identified additional costs that need to be taken into consideration.

B4.1 Funding request and profiling (£000s)

Low Package	2019/20	2020/21	2021/22	2022/23	Total (£)	% total
Requested DfT funding (per capita figure - £5m)		1,426	12,323	13,047	26,796	51%
LA contribution		862	2,740	3,273	6,875	13%
Third Party contribution		176	9,082	9,574	18,832	36%
Total		**2,464**	**24,145**	**25,894**	**52,503**	

Note: The third party contribution is largely from First Bus.

Core Package	2019/20	2020/21	2021/22	2022/23	Total (£)	% total
Requested DfT funding (per capita figure)		1,426	13,393	17,510	32,329	55%
LA contribution		862	2,002	5,059	7,923	13%
Third Party contribution		176	9,082	9,574	18,832	32%
Total		**2,464**	**24,447**	**32,143**	**59,084**	

Note: The third party contribution is largely from First Bus.

High Package	2019/20	2020/21	2021/22	2022/23	Total (£)	% total
Requested DfT funding (per capita figure + £5m)		1,426	14,612	20,726	36,764	58%
LA contribution		862	1,552	5,510	7,924	12%
Third Party contribution		176	9,082	9,574	18,832	30%
Total		**2,464**	**25,246**	**35,810**	**63,520**	

Note: The third party contribution is largely from First Bus.

The funding profile reflects the assumed timescale for approval of funding and takes into account the impact of release of restrictions following on from COVID-19, whilst ensuring that the programme remains deliverable within the timescales of the fund.

B5. Management Case

We have reviewed the Management Case that was presented in November 2019 and there are no changes in the proposed governance of the programme. We have taken the opportunity to review the delivery programme in light of a reduced number of schemes and accommodating the impacts of COVID-19. At a corporate level, recent events surrounding COVID-19 have led to a review and update of all relevant risk and contingency registers.

A revised programme for our Core case is provided in **Annex 9**.

Local Assurance Framework

The National Local Growth Assurance Framework sets out a framework for Mayoral Combined Authorities with a Single Pot funding arrangement and Local Enterprise Partnerships. As Norfolk County Council is neither of these, a local assurance framework document is not available to provide. Instead, our November 2019 business case submission outlined the well-established governance and assurance arrangement we have in place through our TfN delivery partnership with Norwich City Council, South Norfolk Council and Broadland District Council.

A number of questions were raised by DfT to our November 2019 submission and responses to these are outlined in the table below.

DfT Feedback	Response
It refers to Annex B of national guidance but could explicitly state requirements and how they will be carried out.	We recognise the need to provide robust decision-making and assurance to ensure that we maximise the benefit of the funding investment. The guidance set out in Annex B is fully noted and understood and forms the basis on which schemes locally are assessed, approved, monitored and evaluated. Annex B sets out guidance specifically related to transport schemes in terms of how value for money, external views on business cases and evaluation and monitoring will be assessed and monitored. This is to demonstrate that processes are in place to ensure that modelling and appraisal is sufficiently robust and fit for purpose for the schemes under consideration, describing how this meets the guidance set out in WebTAG. The modelling and appraisal of schemes contained in our business cases has been developed in accordance with the guidance published in WebTAG, as well as through co-development with modelling specialists from DfT. The appraisal and modelling has been undertaken independently by Mott MacDonald and WSP in accordance with WebTAG and has been provided independent of, but reviewed for acceptability by, the Council and the co-development process with DfT. The assessment and scrutiny of the schemes being put forward will be quality assured via submissions to our TfN Joint Committee for consideration and approval. The TfN Joint Committee has representation not only from the partner local authorities, but also from the New Anglia LEP, which is an independent body. In addition to outlining the VfM assessment of schemes, applications to the Joint Committee will also outline the key social and public health benefits that these schemes will provide. The VfM assessment for schemes over £5m will be signed off as true and accurate by a named officer with responsibility for VfM assessments.
Only refers to schemes which “significantly change the transport network infrastructure” - this seems vague even though this is in national guidance.	All schemes that require any change, big or small, to the transport network infrastructure will be considered at the TfN Joint Committee. Additionally, changes that affect the use of the transport network, such as on-street parking or changes in traffic circulations and restrictions, will be considered either at the TfN Joint Committee or through a delegated decision, or both. These schemes will require appropriate consultation being completed and reported through these channels.

DfT Feedback	Response
It is not clear what they mean by “proportionate” modelling and appraisal?	Throughout the Transforming Cities application process, we have undertaken a proportionate approach to modelling and appraisal, through guidance from DfT and joint working with our specialist modelling and appraisal teams. This approach has worked well and has led to the production of a number of Technical Notes and other documents being prepared and shared. The proportionate approach was based on the status of the business case being required (Strategic Outline Business Case). Schemes of different funding levels and complexities will be taken forward for delivery and a proportionate approach will be used to the level of assessment undertaken. For example, a high value scheme that requires third party land and creates a fundamental change in how the transport network is used in that area will require a higher level of assessment and engagement than a low-value cycle and pedestrian crossing scheme on a key desire line where there is strong local support.
Not clear how schemes below £5m will be independently scrutinised.	All schemes below £5m that require a change to the transport network infrastructure will be considered at the TfN Joint Committee. The TfN Joint Committee has representation not only from the partner local authorities, but also from the New Anglia LEP, which is an independent body. These business cases will set out not only the necessary VfM criteria as required by WebTAG, but also the key social and public health benefits that these schemes will provide. Approval to procure external services will be sought from the Project Board for schemes up to £5m, and from the Joint Committee for schemes over £5m.
It is needs to be clearer about minimum VfM requirements and whether schemes will be scrutinised / appraised by scheme / theme / corridor?	There is no set definition for what should be a minimum VfM threshold for individual schemes as decision making incorporates factors such as strategic fit, additionality and deliverability in addition to VfM. However, we will always seek to deliver schemes that achieve the highest possible classification of VfM with a minimum of ‘High’ VfM were possible. Schemes will be presented individually to the TfN Joint Committee but impacts of the scheme on a corridor and city-wide level will be presented to ensure knock-on benefits and impacts are understood. This will ensure that the relationships between different schemes is reflected and that the overall context is clearly outlined to aid decision making.

DfT Feedback	Response
Social researchers have commented on M&E section: Details on M&E actually included in New Anglia's Monitoring and Evaluation guidance. Commitment to undertake proportionate M&E. Guidance is strong on detailing why M&E is important, types of evaluation and what methods to use when. Weaker on outputs of LEP's evaluations though overall it is good.	Our Monitoring and Evaluation (M&E) plan will be structured to follow DfT guidance and will adopt an approach that analyses the causal effects of our Transforming Norwich programme. Governance and resourcing for the implementation of the M&E plan will be designed to ensure that monitoring and evaluation is fully integrated into wider project delivery while remaining proportionate and cost effective. A number of reports are proposed; a baseline report (pre-implementation); one year after report; a five years after report. The evaluation will also inform our partners, including our partner district councils and the New Anglia Local Enterprise Partnership (LEP), of the impact of our programme on the local economy and its contribution to the productivity and environmental objectives within the city region.

B6. Commercial Case

Overall, the Commercial Case remains fundamentally the same as in our November 2019 submission. However, initiatives relating to Norfolk Car Club, electric vehicle charging infrastructure and the provision of new Park & Ride sites have been removed from the resubmission. Schemes that have not been included in this resubmission will remain within the wider TfN programme and will form a pipeline of future projects that we will look to deliver in the longer term or through alternative funding sources.

There will be ongoing review of the procurement strategy throughout ensuring all suppliers are able to offer the same service post COVID-19.

We have a firm commitment from First Bus to invest in new vehicles and bus service enhancements. A copy of this commitment from First Bus can be found at **Annex 10**.

SECTION C – Monitoring and Evaluation

C1. Monitoring and evaluation

There are no changes to the approach we will be taking to developing our Monitoring and Evaluation (M&E) Plan from what we submitted in November 2019 and we remain fully committed to engage in this important activity and look forward to working closely with the National Evaluator to develop and implement our plan. We are submitting a revised scheme delivery programme for this resubmission, which will be used as the basis for our plan.

Governance and resourcing for the implementation of the plan will be designed to ensure that monitoring and evaluation is fully integrated into wider project delivery while remaining proportionate and cost effective. A number of reports are proposed; a baseline report (pre-implementation); one year after report; a five years after report.

We have a M&E Plan in place for the works we are delivering through the DfT Access Fund (our 'Pushing Ahead' initiative) and will look to see what synergies there are between this and the Transforming Cities programme. The current COVID-19 pandemic has forged closer working relationships with colleagues in Public Health and Active Norfolk, particularly in terms of data sharing, analysis and communications, which we will also look to build on going forwards.

Appendices

Appendices that have been included in this submission are as follows:

- Appendix A – Scheme Overview Map - (Updated from November submission)
- Annex 1 – Clarification Questions - (New submission)
- Annex 2 – Overall Scheme List - (New submission)
- Annex 3 – Scheme Highway Impacts table - (New submission)
- Annex 4 – AS Tables - (Updated from November submission)
- Annex 5 – AMCB Tables - (Updated from November submission)
- Annex 6 – TEE Tables - (Updated from November submission)
- Annex 7 – PA Tables - (Updated from November submission)
- Annex 8 – Highway Proxy Benefit Plots - (Updated from November submission)
- Annex 9 – Programme - (New submission)
- Annex 10 – Letter of commitment from First Bus - (New submission)

Appendix A - Scheme Overview

Transforming Norwich Overview

Resubmission Version

28 May 2020

Projects

Tranche 1 | Tranche 2

Funding scenario

- H — High cost package
- M — Medium cost (core) package
- L — Low cost package

Mobility hubs with 400m catchment

City Centre

- A — Prince of Wales Road
- L 1 — St Stephens Street
- L 3 — Tombland
- L 5 — King Street
- L 7 — Norwich Rail Station mobility hub (1)
- L 9 — Grapes Hill roundabout
- L 10 — City centre eastbound through-traffic reduction
- L 11 — Thorpe Road (Clarence Road - Carrow Road)
- L — Wayfinding
- L 2 — Norwich Bus Station

Wymondham - City Centre

- L (4) — Wymondham Rail Station platform access
- H (4) — Wymondham Rail Station mobility hub
- B — Blue pedalway - Hethersett section
- L (7) — Thickthorn P&R Phase 1
- H (7) — Thickthorn P&R Phase 2
- M (34) — Norfolk and Norwich University Hospital mobility hub
- L 14 — South Park Avenue and Unthank Road
- L 17 — Newmarket Road (Eaton Road - Christchurch Road)
- L 18 — St Stephens Road

Sprowston - City Centre

- L 21 — Sprowston Road (Denmark Road - Outer Ring Road)
- L 22 — Sprowston Road (Magdalen Road - Denmark Road)

Easton - City Centre

- L 24 — Dereham Road (Longwater Lane - Wendene)
- L 25 — Dereham Road / Richmond Road
- L 26 — Dereham Road / Breckland Road with Costessey & Bowthorpe mobility hub (16)
- L 27 — Earlham Green Lane - Marriott's Way
- L 30 — Marriott's Way link
- L 31 — Marriotts Way to Hellesdon Road
- L 32 — Dereham Road / Larkman Lane and Larkman mobility hub (17)
- C — Dereham Road east area pedestrian access and safety
- L 33 — Dereham Road / Old Palace Road / Heigham Road

Rackheath - City Centre

- M 37 — Heartsease Fiveways junction
- M 38 — Kett's Hill roundabout

Airport - City Centre

- L 41 — Norwich Airport industrial estate link
- L 42 — Cromer Road & Aylsham Road (Fifers Lane - Glenmore Gardens)
- L 43 — Boundary junction
- M 44 — Cycle and pedestrian crossing of outer ring road (Mile Cross)
- H (22) — Mile Cross mobility hub

Broadland Business Park - City Centre

- D — Green pedalway: St Williams Way / Ring Road section

KEY

- Clean transport priority routes
- Green pedalway
- Purple pedalway
- Marriott's Way / National Cycle Route 1
- Rail station
- Bus station
- Airport
- Park and Ride
- Norfolk & Norwich University Hospital
- Education
- Employment
- Homes/housing growth areas
- Possible new housing
- City & town centre area
- Reducing Inequalities Target Areas

0 500 1,000 2,000 3,000 4,000 5,000 M

0 100 200 400 600 800 1,000 M