









DERBY CITY COUNCIL

Nottingham City Council

Derby and Nottingham Transforming Cities Fund Tranche 2

Strategic Outline Business Case

November 2019

itp

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SYSTRA

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1. Introduction

1.1 This document sets out the Strategic Outline Business Case (SOBC) for Derby and Nottingham City Councils' joint bid into tranche 2 of the Department for Transport's (DfT) Transforming Cities Fund (TCF). It builds purposefully on our fully-funded Tranche 1 transport schemes to establish inter-related packages of regionally significant investments. Together, these will improve opportunities for local residents, employees and visitors to travel more sustainably into, and around, the local area. This complements our Future Mobility Zone proposals submitted to DfT in September 2019.

Bid overview

1.2 This is a programme-level SOBC submission, for which we have prepared three costed packages in line with DfT's co-development guidance:

- Low: £117.91m total programme value (£100.46m DfT Capital investment)
- Medium: £152.95m total programme value (£131.16m DfT Capital)
- High: £186.35m total programme value (£160.78m DfT Capital)

1.3 These three packages are all framed around four themes, and demonstrate scalability across many of the proposed investments. Bus priority measures, traffic signal upgrades, segregated cycle routes and city-centre public realm upgrades can all be extended over larger areas to maximise positive impacts on Derby and Nottingham.

1.4 Our bid brings together funding from the Department for Transport's Transforming Cities Fund, local government sources, plus significant contributions from the private sector. This joint submission by Derby and Nottingham City Council's reflects our commitment to working together to:

- Address the cross-boundary mobility pressures – particularly for access to employment and skills development.
- Maximise the impact of transport investments that accelerate the delivery of new homes and improve access to new and existing jobs.
- Encourage an increase in journeys by low carbon, sustainable travel modes in order to contribute to climate change objective, tackle air pollution and contribute to improving public health.

1.5 This SOBC has been prepared in line with the principles of HMT and Department for Transport Major Scheme Business Case guidance, and structured around the five cases

(Strategic, Economic, Financial, Commercial and Management). The make-up of the investment packages, and our approach to preparing this business case, has been guided by advice and support from DfT colleagues through the co-development process. We welcome further feedback from DfT upon funding award, and look forward to continuing to work with colleagues at DfT on an ongoing basis through the TCF programme delivery process.

Structure of the remainder of this document

1.6 The remainder of our SOBC is structured around the following sections:

2) **Strategic Case: Local Context** - outlines Derby and Nottingham's local transport context, issues & opportunities for transformation.
3) **Strategic Case: Developing the programme** – summarises the option generation, scheme sifting and investment theme/package development processes we used to shape this SOBC.
4) **Strategic Case: Finalised TCF packages** – details the groups of complementary schemes, arranged around each of our four investment themes, that we intend to deliver in order to improve the quality, reliability and extent of sustainable transport networks, city centre transport hubs, and key public spaces across the Derby and Nottingham urban area.
5) **Economic Case: Value for Money** – presents the forecast impacts associated with each of our Low/Medium/High investment packages, quantifies their monetised economic benefits (where possible), and considers them in relation to risk-adjusted costs for each package.
6) **Financial Case: package and scheme costs** – sets out the costs associated with each of our Low/Medium/High investment packages, demonstrates the scalable nature of their composite themes and schemes, identifies sources of match funding contributions and profiles our expected spending levels over the 2019/20 – 2022/23 programme delivery period.
7) **Commercial Case: procurement and delivery** – demonstrates the market engagement activities we have undertaken while developing this SOBC and our expected approach to procuring the design/implementation services we will need.
8) **Management Case: Governance, risks, management and evaluation** – explains how we will work to plan, deliver and monitor the programme based on tried-and-tested approaches to reducing risks and maximising sustainable mobility impacts.

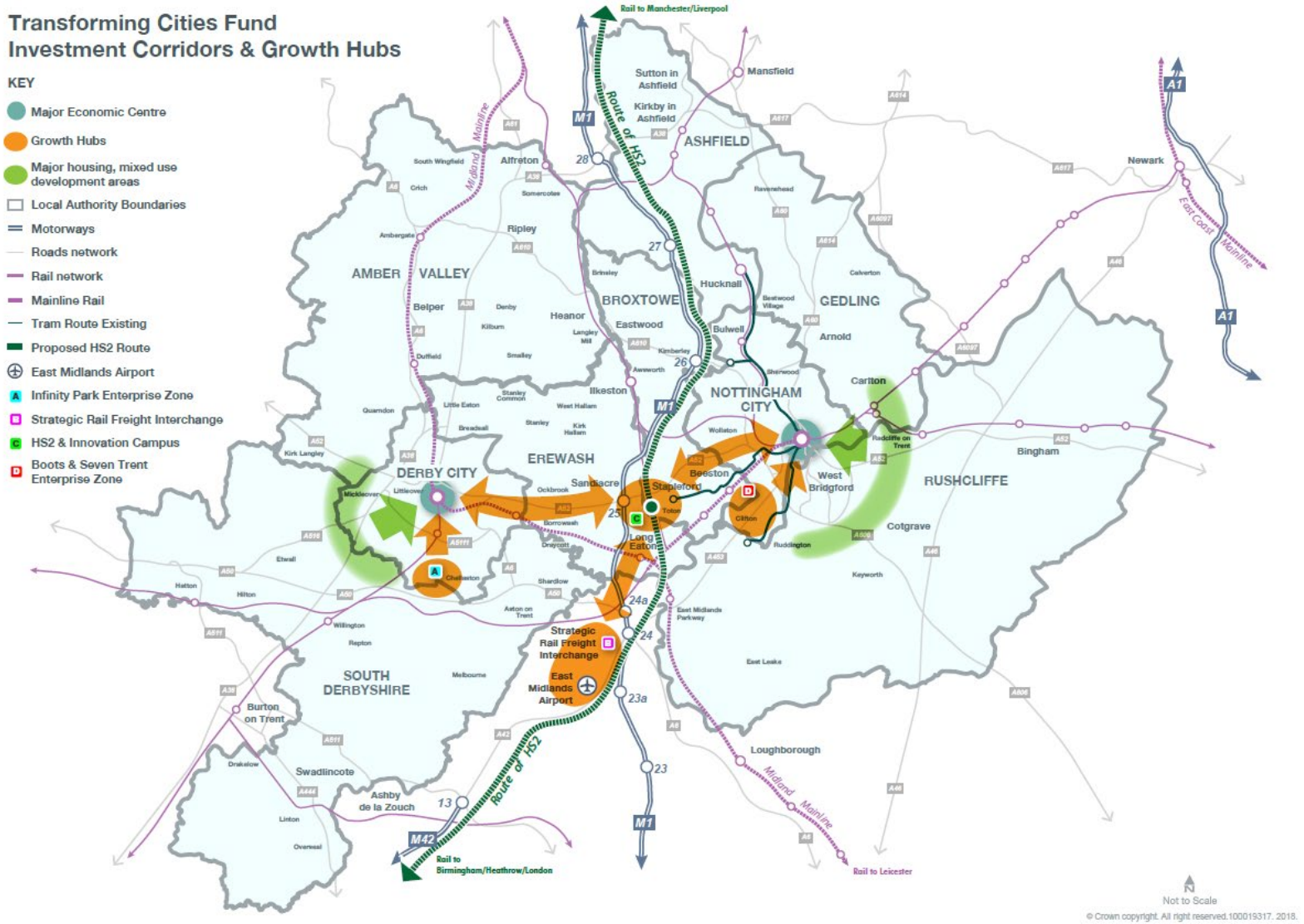
2. Strategic Case: The Local Context

2.1 The cities of Derby and Nottingham, and their immediate surrounding areas, cover around 1,600km^2 and are home to a workday population of 1.4 million people. The area is formed of the unitary authorities of Derby and Nottingham, working with Derbyshire districts (Amber Valley, Erewash, and South Derbyshire) and Nottinghamshire districts (Ashfield, Broxtowe, Gedling, and Rushcliffe).

2.2 As well as two vibrant and complementary cities, each with world class heritage and natural capital assets, this 'metro' area comprises the growing East Midlands Airport, the proposed HS2 East Midlands Hub Station at Toton (and adjacent innovation campus), and major new housing and employment growth locations which are already allocated through Local Plans. Both East Midlands Airport, and the new strategic rail freight interchange at Junction 24 of the M1 (East Midlands Gateway) sit within the administrative area of northwest Leicestershire (see Figure 2-1), but also serve the D2N2 Local Enterprise Partnership area and are close to both Derby and Nottingham. As such, these priority Midlands Engine growth hub sites are a key focus of the transport improvements proposed in our funding bid.

2.3 This section summarises the key local growth and mobility issues, and opportunities, that currently affect the Derby and Nottingham metro area. It identifies how they align with the Transforming Cities Fund objectives – as well as those defined in the adopted Local Transport Plans, the D2N2 Local Enterprise Partnership's Strategic Economic Plan and emerging Local Industrial Strategy and the only LEP area Local Cycling and Walking Infrastructure Plan (LCWIP). The evidence set out in this section has directly guided our subsequent sifting and packaging of transport schemes and investments (documented in section 3), to ensure they offer a good strategic fit with identified programme objectives.

Figure 2-1: Key Derby & Nottingham area investment corridors and growth hubs



Key statistics and background

2.4 **Size & Scale:** The Derby and Nottingham area combined equates to the fifth largest urban area outside London, and is in the top 50 largest urban areas in Europe[1]:

- 89% of residents live in urban areas, at a density of ~2,000 people per km^2.
- It has a high proportion of young people, largely due to three highly rated universities with a total of 76,000 students enrolled[3].
- Total population is forecast to increase by 8% up to 2029, with the working age population reducing as a proportion of the total[4].

2.5 **Educational attainment:** Varies considerably across the area, but is slightly below national averages:

- 72% of residents have GCSEs at grade A* to C (75% national average) and 33% are educated to degree level (38% national average)[5].
- In Ashfield 59% of working age people have 5 GCSE qualifications and 18% have a degree, whereas Rushcliffe, Broxtowe and Gedling demonstrate considerably higher levels of GCSE and degree qualification[5].

2.6 **Employment:** Over 635,000 residents are in work (72% of those aged 16-64)[6] and there are over 600,000 jobs within the area[5]:

- Over half (55%) of all these jobs are focused in the Derby and Nottingham City administrative boundaries[6].
- The overall unemployment rate across the area is 2.1%, but this ranges from 5.7% (Aspley in Nottingham and Cotmanhay in Erewash) to 0.2% (South West Parishes in Amber Valley)[7].

[1] Eurostat Database urban audit 2014: (Figure combines Derby and Nottingham urban areas with others). https://ec.europa.eu/eurostat/web/cities/data/database
[2] Census (ONS 2011): www.ons.gov.uk/census/2011census
[3] ONS mid-year population estimates 2016: Age profile: 260,000 aged 0-15; 890,000 working age including 76,000 students; 240,000 aged 65 or over: www.nomisweb.co.uk
[4] ONS 2014 based population projection: www.nomisweb.co.uk
[5] Annual Population Survey Jan-Dec (ONS 2017) www.nomisweb.co.uk
[6] Business Register and Employment Survey (BRES) 2016: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/businessregisterandemploymentsurveybresprovisionalresults/previousReleases
[7] Claimant Count February (ONS 2018): www.nomisweb.co.uk

2.7 **Economy:** The Derby and Nottingham area operates with significant economic self-containment[8]:

- This is reflected by the 82% of residents who work, and 83% of employees who live, within in the Derby and Nottingham area shown in Figure 2-1[8].
- It is a priority Midlands Engine growth hub, with a forecast 50,000 additional homes needed by 2029 to keep pace with employment growth and wider socio-demographic changes[9].
- A shared industrial history and close proximity means the cities have developed complementary, rather than competing, economies worth over £30bn per annum[8].

2.8 **Life expectancy:** There is an urban-rural divide across the area, and striking comparisons exist to neighbouring areas:

- Derby and Nottingham exhibit significantly lower-than-England averages across all four life expectancy indicators. Males in the least deprived Derby areas live an average of 12 years longer (females: 8 years longer) than those in the most deprived locations.[10]
- The 'window of need' gap between life and healthy life expectancy is marked. In neighbouring Rutland, males spend an average of 13% and females 17% of their lives in poor health. In Nottingham, this equates to 27% for males and 30% for females on average.[10]
- For each preventable cause, Nottingham and Derby (and Leicester) consistently have highest preventable mortality rates in the East Midlands. These are areas associated with the highest levels of deprivation in the region and people living here are more likely to suffer ill health and die prematurely.[10]

[8] 'The Economic Case for the Derby-Nottingham Metro' (Metro Dynamics 2017): https://static1.squarespace.com/static/55e973a3e4b05721f2f7988c/t/5a0ec0a1085229ac66594a99/1510916265007/Metro+Dynamics+-+Derby-Nottingham+Metro+Economic+Case.pdf

[9] Derby and Nottingham Housing Market Area Core Strategies:
Derby HMA: https://www.derbyshire.gov.uk/environment/planning/planning-policy/land-availabilty/derby-hma/derby-housing-market-area.aspx (2011)
Nottingham HMA: https://www.nottinghamcity.gov.uk/media/361912/broxtowe-gedling-and-nottingham-aligned-core-strategies.pdf (2014)

[10] Health Inequalities in the East Midlands Evidence Report (Public Health England 2017): http://www.emcouncils.gov.uk/write/Health_inequalities_in_the_East_Midlands_Final.pdf

Primary local transport challenges and opportunities

2.9 These key statistics highlight a number of key local transport challenges and opportunities that our Transforming Cities investment programme seeks to address and exploit.

1: Strong foundations for sustainably-connected future growth

2.10 The Midlands Engine identifies Derby-Nottingham as one of four priority areas with potential to drive forward the Midlands economy[11]. Attractively located at the UK's heart, the Derby-Nottingham city region is home to major global businesses, including:

- Toyota (Burnaston, Derby): 2,900 employees and a current programme of investment totalling £250m to facilitate construction of the new Toyota Corolla.
- Rolls Royce (Derby and Hucknall/Annesley, Nottingham): 13,000 employees with strong links to all three local Universities engineering departments.
- East Midlands Airport (Castle Donington): 8,000 employees based at the airport site in north Leicestershire, 46% of whom live in Derbyshire and Nottinghamshire.
- Vision Express (Ruddington, Nottingham): Major employer headquartered to the South of Nottingham.
- Walgreens Boots Alliance (Beeston, Nottingham): 5,000 staff based at its UK headquarters, and the site of a major Enterprise Zone that will deliver new homes, and employment land on brownfield land.
- Experian (Nottingham): 2,800 staff across Nottinghamshire with £621m global turnover. Founder Sir John Peace now Chairs the Midlands Engine group.
- Capital One (Nottingham): 1,000 staff based at its central Nottingham HQ adjacent to the city's main railway station and NET tram route through the city centre.

2.11 We now have opportunities to fundamentally transform our economy. As shown in Figure 2-1, significant new out-of-town employment growth hubs are emerging between the cities (i.e. HS2 East Midlands Hub Station, and East Midlands Gateway) with supporting plans to build an Innovation Campus and approximately 50,000 new homes[9].

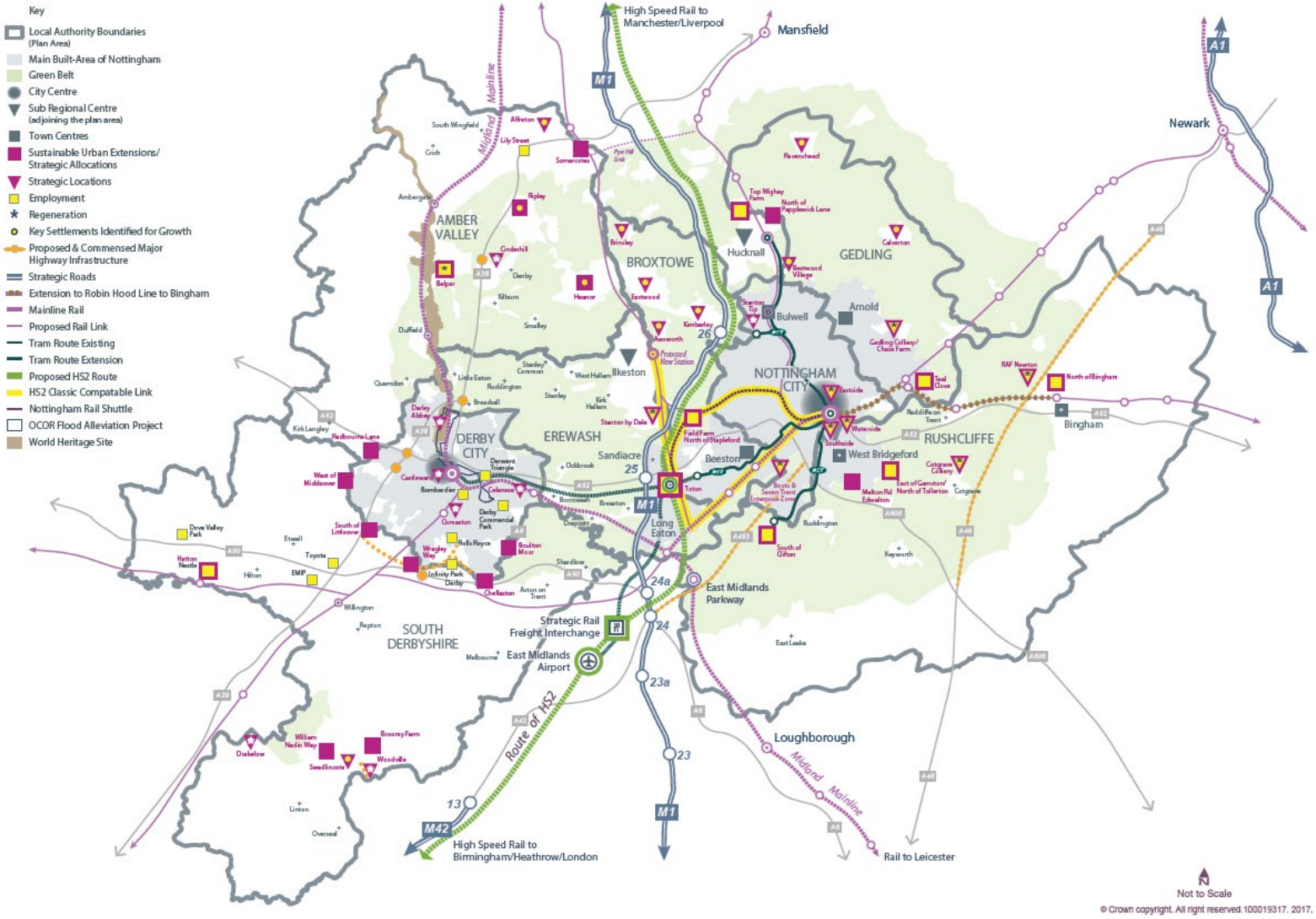
[11] Delivering a Transport Strategy for the Midlands (Midlands Connect 2016: https://www.midlandsconnect.uk/media/1058/mc-transport-strategy.pdf

2.12 Figure 2-2 shows that these 50,000 new homes are spread across 15 strategic Local Plan allocations, including:

- Rushcliffe East of Gamston/north of Tollerton – 4,000 homes
- Rushcliffe, Clifton south - 3,000 homes
- Nottingham, Waterside regeneration area, 3,000 homes
- Gedling Colliery/Chase Farm – 1,000 homes
- Derby, Celanese site – 1,000 homes
- Derby, City Centre – Castleward Urban Village - 800 homes
- Derby, Boulton Moor - 800 homes
- Derby, Castleward site - 600 homes
- South Derby Growth Zone (Infinity Park Gardens) - 3,200 homes
- Rushcliffe, Melton Road – 1,600 homes
- Nottingham, Boots campus – 1,100 homes
- Broxtowe, Toton/Chetwynd Barracks – 1,000 homes
- Derby, Rykneld Road, Littleover - 900 homes
- Gedling, Teal Close - 800 homes
- Nottingham, Island site - 600 homes

2.13 Located, as they are, primarily to the edges of the existing urban areas of Derby and Nottingham, these new housing locations are expected to extend existing commuter travel patterns along existing key transport corridors. The mixed-use nature of a number of these proposals will co-deliver new commercial land uses and associated job opportunities across up to 770 hectares of employment land in Derby (199ha), Nottingham (290ha) and East Midlands Gateway (280ha). As well as help to internalise some trips, they are also expected to attract commuter and business-related trips to new locations, as firms relocate and expand into the new employment sites.

Figure 2-2: Strategic housing and employment growth



2.14 This growth therefore presents an opportunity to improve the quality and sustainability of local connectivity, and achieving this aim necessitates that we further develop existing transport infrastructure and build on high quality public transport services such as the Nottingham Express Transit (NET) tram and SkyLink bus networks.



2.15 This means evolving our mass transit system and key bus corridors, and capitalising on planned and recently completed investments, (including A52 and A38 road capacity improvements, and the Derby and Nottingham rail and bus station upgrades), with new flexible public transport and active travel links. We must also exploit and deploy new technologies along key corridors that connect existing urban areas with emerging growth.

Derby and Nottingham's TCF2 bid seeks to improve sustainable transport connections to key local growth sites through:

Improvements to high frequency bus corridors and mass transit services which will deliver increased reliability, capacity and accessibility to our growth hubs through extended bus priority, new and expanded park and ride sites and an evolution of digital public transport information and payment.

The delivery of **new dedicated safe cycle routes** to encourage lower levels of single occupant vehicle use and help reclaim existing highway capacity to key growth locations; including East Midlands Gateway and Airport, Boots Enterprise Zone all of which feature in the D2N2-wide LCWIP. Our e-bike hire system proposals will help to extend the distances that many people feel able to cycle.

Major public realm improvements around city centre transport hubs in Derby and Nottingham, to establish safer, more cohesive walking and cycling routes to new employment and residential sites in each city (e.g. Siddals Road in Derby, and Nottingham Station Southern growth area), and desirable urban live/work sites.

Installation of new EV rapid charge points for electric vehicles, to encourage lower-carbon journeys and further accelerate local uptake in the use of EVs.

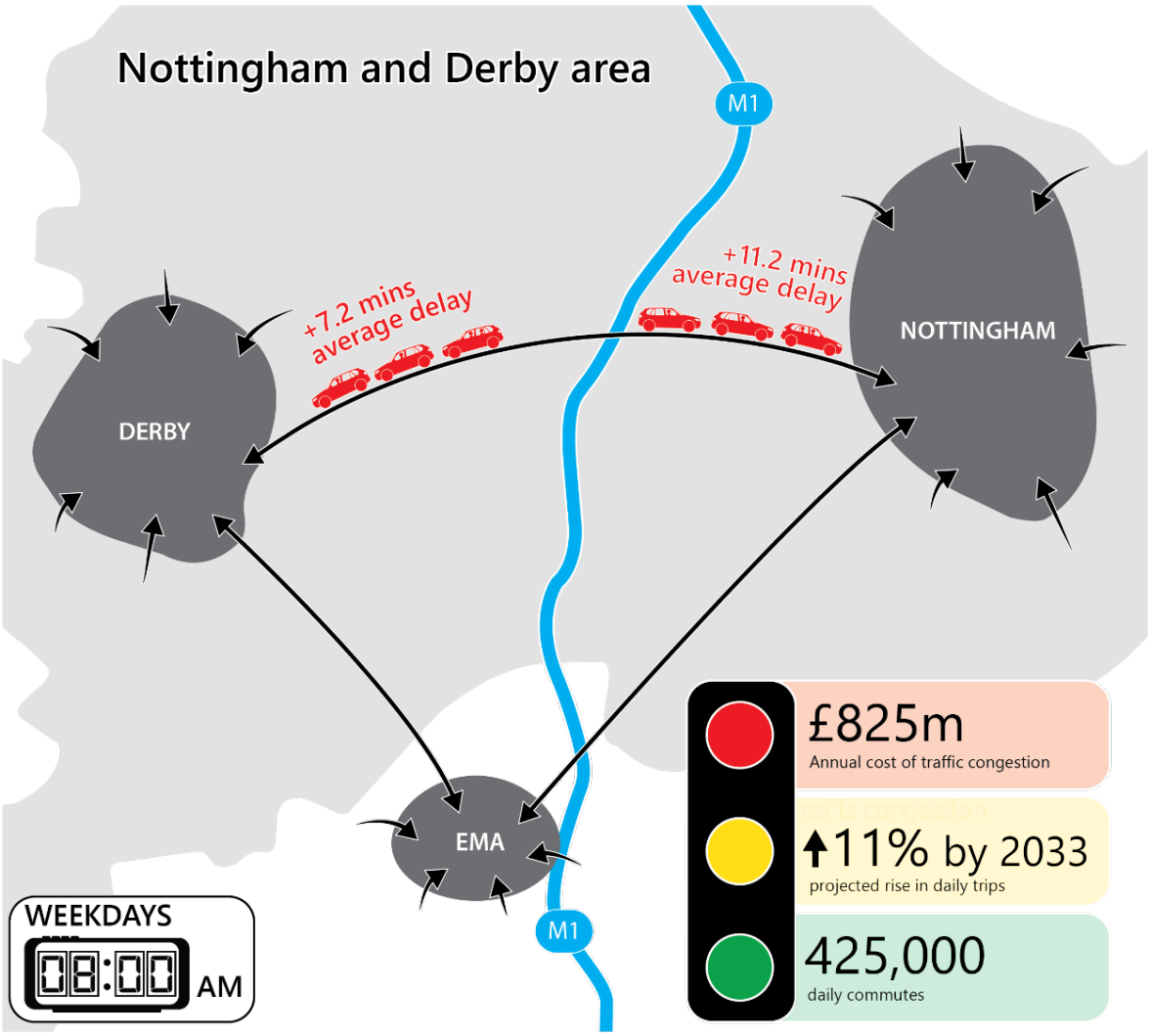
Travel grants, for employers to provide on-site facilities (cycle storage, lockers, showers, EV charge points) to meet the needs of staff and visitors travelling to their site by more sustainable options.

2: Transport pressures from recent growth and past underinvestment

2.16 Common to many urban areas in the UK, road traffic congestion is a significant issue on both the Strategic Road Network, and along main approach routes into Derby and Nottingham and their urban ring roads - particularly during peak periods. DfT vehicle counts on the main A-roads between the two cities and East Midlands Airport and Gateway business park show that annual average daily flows are between 30,000-60,000 vehicles per day along each key link, with the majority of the flow (~80%) comprising of car trips.

2.17 According to 'The Local Plan to Improve Air Quality in Nottingham' commuters account for about 70% of peak hour traffic congestion in Nottingham. As illustrated in Figure 2-3, these pressures are a function of the inter-connected nature of the two cities' urban areas and the airport employment area that sits between them (which are also the locations for the majority of jobs in the local area). It reflects the area's extremely high (89%) 'economic self-containment' rate, with 92% of D2N2 workers living in the D2N2 area and 87% of D2N2 residents working in the D2N2 region.

Figure 2-3: Traffic congestion pressures in the Derby and Nottingham area



2.18 The level of traffic congestion between the two cities causes significant journey time variability for motorists and bus users on a daily basis. It adversely impacts on the supply chains, and Just-In-Time delivery regimes, of our region's major manufacturers and employers, some of whom are increasingly choosing to locate into growth areas (such as the East Midlands Gateway and Derby's Infinity Park) that are well-sited for

highway connections, but less-well served by established public transport and cycling networks. Average inbound speeds for Derby and Nottingham are down to 19mph in the AM peak period - significantly below the 32mph average recorded for the same journeys in the middle of the day.

2.19 Reviewing Google Maps' journey planner forecasts emphasises the impact of these low AM Peak hour travel speeds on journey times to Derby, Nottingham and the Airport employment zone. Table 2-1 examines some the key corridors along which the TCF2 investments are being targeted (see Sections 3 and 5). A number of key trends shown in the table have been identified below:

- On average, AM Peak journeys by car take between 50%-100% longer than those completed during the Inter Peak period. They are also significantly more variable than those by bike and public transport.
- Public transport alternatives are journey-time comparable for most trips into Derby and Nottingham during the AM Peak, except for:
  - Journeys that involve traversing the Derby/Nottingham urban areas to reach another destination (e.g. Hucknall to Derby / Mickleover to Nottingham).
  - Journeys that involve multiple modes and interchanges.
  - Most trips to the East Midlands Airport employment area, reflecting that it is generally less-well connected that Derby and Nottingham.
- In many cases, it can be faster to cycle (notably, into Derby and Nottingham city centres during the AM Peak) or take public transport than drive (although public transport is location-dependant). With further improvements, it should be possible to make cycling or public transport the 'obvious' choice over driving a private car.

2.20 Lower traffic speeds between Derby and Nottingham are also impacting on bus operations. Our engagement with bus operators, through the Bus Quality, Robin Hood and Derby strategic bus partnerships[12], has highlighted several pinch point locations that cause delays to service schedules and require additional vehicles to be added to routes in order to maintain frequent headways. Indeed, recent analysis of changes to local bus timetabling have revealed that, over the period 1999-2019, there has been an 18% increase in peak hour journey times by bus in and Nottingham.

[12] The Robin Hood Partnership is a voluntary group managed by Nottingham City Council on behalf of the major bus, tram and rail operators in the Nottingham area who offer multi-operator Robin Hood Network fare products to passengers travelling on their services. The partnership acts as the body responsible for collecting, accounting for, and distributing revenues generated by the purchase of Robin Hood multi-operator fares and tickets for travel in the Robin Hood network area. Nottingham and Derby's separate bus partnerships also meet regularly to co-develop policy and review bus operations. Plans are being advanced to expand the Robin Hood Partnership into Derby.

Table 2-1: AM Peak (8:30am arrival) vs Inter-Peak (3:00pm arrival) journey time comparison across travel modes (mins)

Origin	To Derby city centre				To Nottingham city centre				To East Mids Airport			
	Car (AM)	Car (IP)	Bike	Bus / Rail / Tram	Car (AM)	Car (IP)	Bike	Bus / Rail / Tram	Car (AM)	Car (IP)	Bike	Bus / Rail / Tram
Mickleover (Derby)	16-35	14-24	17	27-31	45-80	35-55	96	71-76	26-50	24-35	73	70-82
Ockbrook (Derby)	16-35	10-16	30	28-40	30-65	22-40	66	71-86	16-28	16-24	59	97
Long Eaton (M1 border)	24-45	20-26	51	45-55	28-60	22-40	40	51-56	18-35	16-24	44	48-56
Beeston (Nottingham)	28-50	22-35	74	56	20-40	16-26	26	31	22-35	20-28	60	50
Hucknall (Nottingham)	35-60	30-45	103	87-94	30-65	22-40	39	40-42	35-55	26-40	99	87-99

Source: Google Maps journey planner data

2.21 Table 2-2 picks out some of the key local bus routes where delays to journey times could potentially be addressed through greater traffic signal priority, extended bus lane provision, and improved enforcement of existing bus lanes.

Table 2-2: Key bus corridor weekday delays linked to identified pinch points

Location	Bus service	Road network section(s)	Section length (Km)	AM Peak Delay/run (secs)	PM Peak Delay/run (secs)	Runs/AM Peak	Runs/PM Peak	Total hours of delay/year	Total lost passenger hours /year
Derby A61	The Nines	Pektron to / from City Centre	3.2	445	387	10	11	612	14,686
Nottingham A453	Skylink Express	Clifton Pastures to / from Nottingham Station	8.0	373	408	5	6	303	7,275
Derby A516	The Mickleover	Kings Drive to / from Victoria Street	3.4	295	222	20	23	773	18,563
Nottingham A610	Rainbow One	Nuthall Church to / from The Nuthall	1.6	57	162	18	16	254	6,102
Nottingham A60	The Calverton	Daybrook to / from Sherwood	1.0	86	149	10	18	186	4,466
Derby-Nottm A6005	Indigo	Toton Corner to / from Nottingham Road	10.3	101	102	15	19	243	5,824
Nottingham A609	The Two	Trowell Moor to / from Glaisdale Drive	2.4	83	54	14	17	146	3,508
Nottingham A611	The Threes	Nottingham College to / from Huntingdon Street	0.8	75	71	15	18	169	4,053
Route section / delay per run totals			30.4	1,515	1,555	Totals across all identified bus routes		2,687	64,478
Average delay (secs)/bus operating km at key locations			50.49						

2.22 These data suggest that, for the identified routes shown in Table 2-2:

- Over 10 bus operating hours are lost to weekday AM/PM peak delays each working day which equates to over 2,500 lost bus operating hours per annum.
- Based on data for average morning peak hour bus loadings for Nottingham in 2018, this is over 28,000 extra bus passenger hours each year.
- Applying an average commuter value of time per hour of £12.87 (2019 prices and values), we can estimate that **delays to bus services in these locations result in an annual economic cost of £602,000 to Derby and Nottingham commuters.**
- Over time this adds up to a significant number of lost productive hours, and opportunity cost to local people and the economy.
- It is particularly a concern, given the trend for peak hour delays – and journey times – across all vehicle types in Nottingham has been for them to increase over the last nine years.

2.23 Tackling these in-service delays and speeding up bus services relative to other vehicle traffic, would therefore be expected to yield considerable local economic benefit as well as improving the attractiveness and journey time reliability of bus services.

Public transport and cycling uptake

2.24 Many Nottingham residents do not own or have access to a car (0.76 cars per person), which is reflected by high levels of public transport use (over 40% of all trips in the city are by bus and tram). Derby, by comparison, has higher levels of car ownership (1.06 cars per person) and lower public transport use per head[13].

2.25 **Local bus and tram services:** Nottingham has bucked recent national trends for declining public transport use in English core cities. This has been driven by the extended NET Tram network, a progressive Workplace Parking Levy, a highway network/city centre environment which prioritises public transport connections, and the two dominant, high quality, award winning bus operators Nottingham City Transport and trentbarton. Consequently, the annual number of passengers has increased to 82.75m (of which 17.73m were by tram) in 2018/19[14], which is a 24% increase on 2003/4 levels.

2.26 Whilst public transport accessibility is generally very good in the Derby and Nottingham urban areas, it becomes variable beyond the urban edges (reflecting the trends in Table 2-1). Smart card ticketing systems operate well in places but are

[13] Buses in Urban Developments (CIHT 2018): http://www.ciht.org.uk/STUE
[14] Nottingham City Authority Monitoring Report (2019): https://www.nottinghamshireinsight.org.uk/d/aAXDCdN

fragmented - with no single integrated ticket that encompasses travel between the two cities and their combined travel-to-work areas. Inter-modal ticketing is also fragmented. Whilst the Robin Hood card can be used on both trams and buses in Nottingham, it is not possible to top-up the Robin Hood card at tram stops and people who live between Derby and Nottingham are unable to access integrated fares for journeys that combine multi-operator bus, tram and rail services. Likewise, the Spectrum multi-operator fare options and smartcard are only accepted within Derby City's urban travel boundary, and it is not applicable to journeys between Derby and Nottingham. The need to purchase multiple tickets for some journeys not only impacts on the perceived convenience of public transport options, but also on their affordability relative to private car use.

2.27 Since its expansion in 2015, Nottingham's tram network offers direct cross-city routes between Clifton (South West of Nottingham) and Toton Lane (West of Nottingham) and Hucknall/Phoenix Park to the north of the city[15]. It is complemented by a hub and spoke bus network, which also offers a range of orbital and local 'Link' bus services. By comparison, Derby's predominantly 'hub and spoke' public transport network can result in long journey times (including interchange) for cross-city journeys - particularly to out-of-town locations.

2.28 Bus services operating between key employment and economic growth locations in Nottingham and Derby, and at East Midlands Airport (such as the Red Arrow and Skylink routes) are currently susceptible to delays caused by congestion along key corridors. Local bus operators have publicly called for greater priority for these services[16], noting that the Red Arrow is routinely hampered by congestion-related delays, with off-peak runs from Derby to Nottingham taking 35 minutes, but in peak times they slow to 45 minutes. The A52, and other corridors between Nottingham and Derby are a key focus for our TCF Tranche 2 interventions.

2.29 **Cycling:** is growing in popularity in the main urban areas of Derby and Nottingham (where there has been a 47% increase on 2010 cycling levels to 2018/19, albeit from a low baseline) with high cycling levels already occurring amongst some large organisations in the cities, suggesting there is potential for further growth.

2.30 Investment in dedicated cycle routes, and resurfacing and widening existing links, has accelerated this increase in the last four years (supported by a combination of LEP and central Government funding) with schemes such as Nottingham's Western Cycle

[15] Nottingham Express Transit tram patronage figures (Nottingham City Council 2019): https://www.gov.uk/government/collections/light-rail-and-tram-statistics
[16] https://www.nottinghampost.com/news/nottingham-news/nottingham-passengers-face-longer-journeys-2995231

Corridor achieving well over a 50% increase in users on an established cycle route in the first year of opening.

2.31 However, cohesive networks of suitable safe, segregated routes are not yet totally comprehensive, or as easy to follow as they could be. Consequently, cycling levels are well below full potential in the Derby and Nottingham area. Travel surveys, such as those regularly conducted with East Midlands Airport employees, often show that although less than 1.6% of employees cycled, 5.2% would consider cycling if infrastructure was improved.

2.32 **Rail:** Finally, the region suffers from overcrowding on rail services at peak times – particularly on services between Derby and Nottingham. Although Nottingham has the lowest number of passengers of all major UK cities, it has higher levels of overcrowding than Newcastle, Liverpool and Brighton. Such overcrowding makes rail travel less appealing and discourages people from considering rail a viable alternative to private car travel. New rail franchise operator, East Midlands Railway's, forthcoming investment in 165 new carriages coupled with improved local infrastructure improvements, is expected to help to alleviate overcrowding on these services. Our TCF proposals seek to complement this investment by improving the rail station interchange facilities and surrounding public realm environments at Derby and Nottingham's two main rail stations. Investment will enhance routes between the stations and their city centres to improve perceived connectivity and consistency in the overall quality and visual aspect of the urban environment. These improvements will make travel by rail more attractive and practicable for both visitors and city residents.

Historic underinvestment

2.33 These trends highlight that historic infrastructure investment has not kept pace with local growth. Central Government statistics (from 2015/16) show the East Midlands had the lowest levels of public expenditure on transport – both in total and per capita[17]. This has contributed to the Derby and Nottingham area not achieving full potential, with productivity consistently below the national average.

2.34 This historic shortfall in investment, particularly on transport connections serving major employment growth locations on the edge of Derby and Nottingham's urban areas, has contributed to high levels of car dependence for trips outside of the urban centres.

[17] East Midlands Council report: http://www.emcouncils.gov.uk/write/Levels_of_Public_Investment_in_East_Midlands.pdf

Local air quality

2.35 Both Nottingham and Derby were in the first wave of UK city authorities that are required to comply with EU air quality limits in the shortest time. This has resulted in the preparation of Local Air Quality Plans setting out measures to deliver air quality compliance. Neither city plans to introduce charging Clean Air Zones.

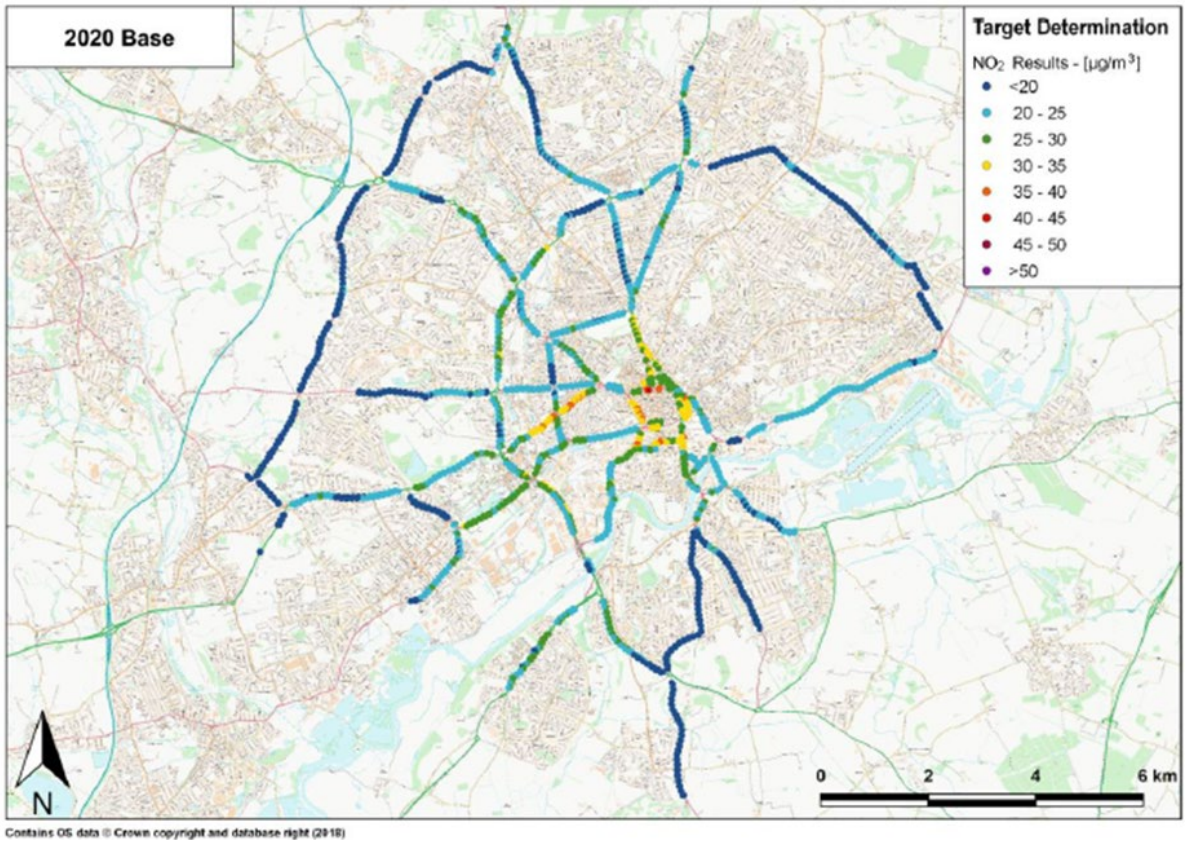
2.36 **Nottingham:** Public consultation on the issue of air quality revealed the importance of this issue locally, with 90% of respondents supporting measures to improve air quality in the city and 88% believing that improving air quality should be a key priority. Specific measures are underway to accelerate compliance, including:

- Retro-fitting 180 Nottingham City Transport buses with clean exhaust technology.
- Requiring every taxi and private hire vehicle to be either Euro 6 or Ultra Low Emission (ULEV).
- Replacing the Council's own specialist vehicles – such as cage tippers and vans – with electric or other low emission vehicles.
- Reviewing the city's Clear Zone - which restricts access to the city centre - to include emissions criteria and a taxi permit scheme.

2.37 Furthermore, Nottingham has committed to be the first carbon neutral city in the UK, aiming to reach this target by 2028. We have already reduced city wide CO_2 emissions by more than 41% since 2005, surpassing previous carbon reduction targets. However, further action is still needed to address air quality.

2.38 Figure 2-4 shows forecast nitrogen dioxide (NO_2) levels in Nottingham. To complement the Local Air Quality Plan, the Air Quality Management Area has also been extended to cover the whole city administrative area.

Figure 2-4: Nottingham 2020 NO_2 air quality model forecasts

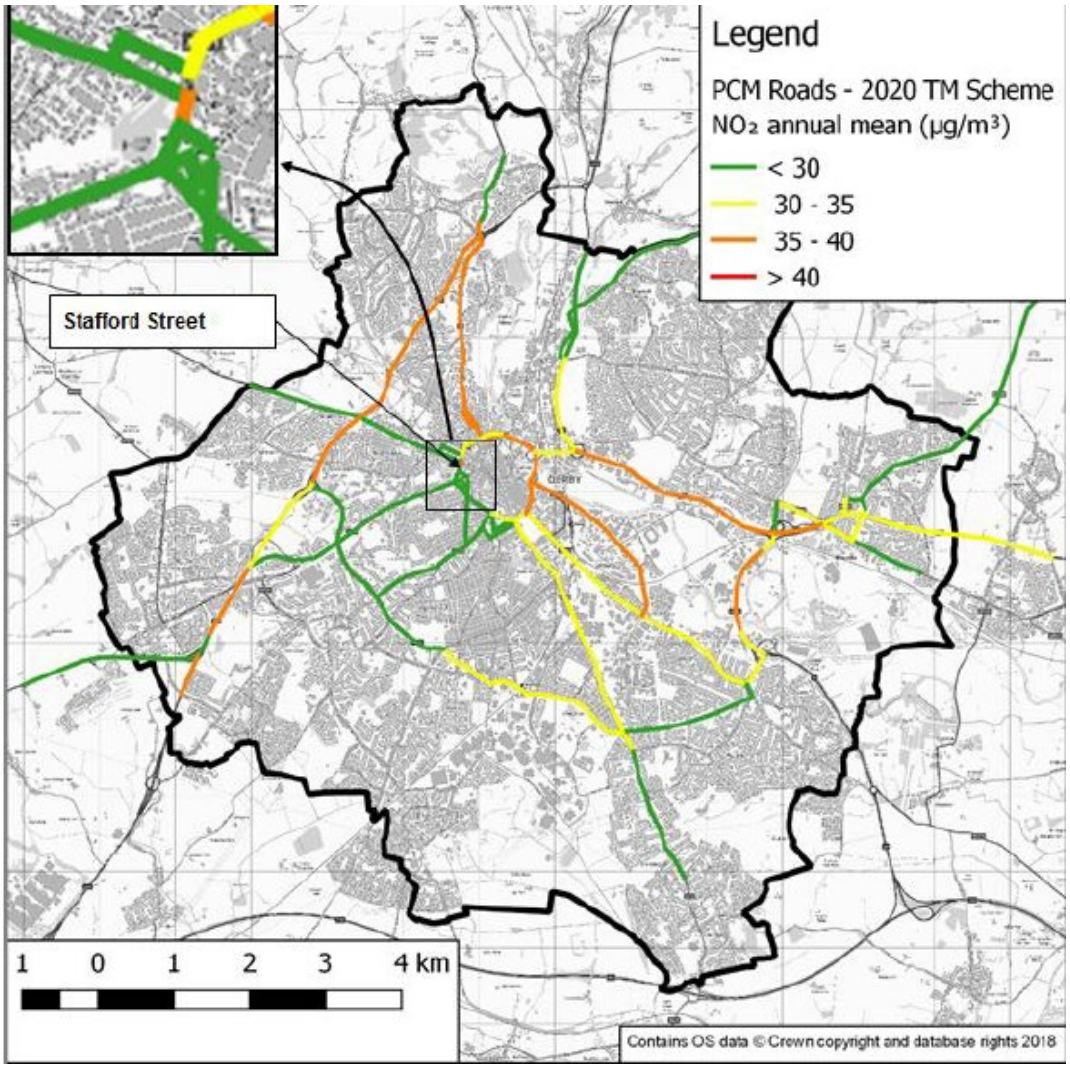


Source: Nottingham City Council (2018) Air Quality Annual Status Report

2.39 In combination with previously implemented measures; including the Workplace Parking Levy, NET tram network, electric and biogas bus initiatives, cycle ambition plan and behaviour change programmes; the Government's Joint Air Quality Unit (JAQU) concurred that a charging Clean Air Zone is not required in Nottingham.

2.40 **Derby:** Modelling work undertaken in partnership with JAQU as part of a long feasibility study identified Stafford Street (which is part of the inner ring road) as the only area exceeding the legal limit for roadside NO2, as shown in Figure 2-5. Public consultation in 2018 showed that 73.6% of respondents favoured a non-charging, advanced dynamic traffic management solution to the single area of exceedance. The Derby Air Quality Plan, was approved by government in May 2019, and the Council is now in the process of completing final design, technical specification and delivery of the approved plan.

Figure 2-5: Derby 2020 NO_2 air quality model forecasts



Source: Derby Local Air Quality Plan Full Business Case (2018)

2.41 Both cities are participating in the delivery of the Go Ultra Low (OLEV funded) initiatives to increase the uptake of Ultra Low Emission Vehicles (ULEVs), helping to contribute to air quality improvements. This includes the creation of a publicly accessible charge point network across the area, comprehensive support for businesses (advice and sustainable transport grants) and events/campaigns to raise the awareness of electric and other ULEV vehicles to the public. Infrastructure for electric vehicles is becoming increasingly important as quarterly statistics by SMMT show that plug-in vehicle registrations have doubled in each city since 2017. According to a letter from the Secretary of State for Transport (29 Oct 2019) which in included 'Zap-Map' survey data, the East Midland average of public charge points per 100,000 of population is 15. The comparable figure for Nottingham is 31 and Derby 21.

2.42 The Transforming City Fund investments already being implemented through Tranche 1, and those proposed for delivery through Tranche 2, will make a demonstrable contribution to improving air quality along the key corridors highlighted through local air quality monitoring and model forecasting. Specifically, the following interventions (described in Section 3 of this SOBC) are focused on locations where air quality levels in our cities are sub-optimal:

- The A60 and A610 bus corridors in Nottingham, which will benefit from bus priority measures that help to keep buses moving.
- The A6, A5194 and A52 bus corridors on approach to Derby inner ring road, which will also benefit from bus lanes and traffic signal priority measures.
- EV charging network expansion across new and expanded Park & Ride sites, and at key destinations in Derby and Nottingham city centres. This will promote greater use of ULEV's and help to reduce tailpipe emissions in central areas of both cities.

City centre sustainable connectivity impacts

2.43 Both Derby (£200m re-signalling project to increase rail capacity, add new platforms and upgrade the station overbridge), and Nottingham (£60m 'Station Hub' refurbishment, including tram stop integration, extended booking hall and new retail facilities in the covered porte-cochère area) rail stations have been a focus for significant Network Rail-led investment in recent times. However, the pedestrian, cycling and public transport links that connect these mainline stations into the two city centres and neighbouring employment districts need urgent improvement:

- Walking routes from Derby and Nottingham stations into the city centres are not coherent or necessarily obvious to new visitors.
- Cycling routes approaching the stations are not continuous; nor segregated from bus, private car, and servicing traffic; making it harder for people to consider cycling to the station as a viable option.
- Accessing the main city centre shopping/employment/leisure areas also requires crossing the inner ring roads of both cities, which are traffic dominated and take time to cross.

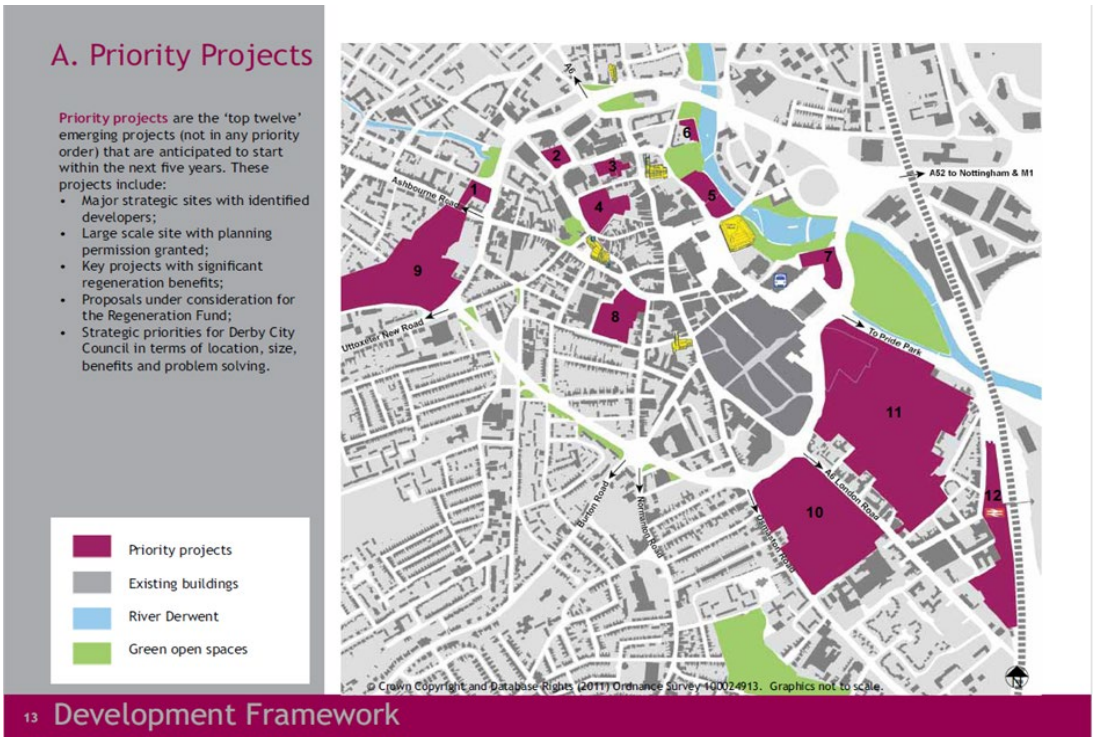
2.44 These connections between the main bus/rail stations of Derby and Nottingham are significant, given the considerable growth being delivered in the vicinity of both rail stations. This includes:

- **Derby**: Castleward residential area (800 homes) with new employment and retail land uses along the existing pedestrian link to the city centre / intu Derby shopping centre. Major leisure development proposals are also being formulated in respect of land located between the mainline railway station and the city centre / bus station. Figure 2-6 depicts the Boulevard, which is the first street in the Castleward area to have benefitted from regeneration investment and public realm improvements.

Figure 2-6: Castleward is one of Derby's major urban renaissance areas



Figure 2-7: Priority Derby City Centre Regeneration Framework[18] projects



[18] Derby City Centre Regeneration Framework (2012): https://www.derby.gov.uk/media/derbycitycouncil/contentassets/documents/regenerationframework/DerbyCityCouncil-City-Centre-Regeneration-Framework.pdf

- **Nottingham**: Unity Square (new home for 4,000 HMRC staff) and major housing and employment developments along the city's southern growth corridor will create pressure for improved access to the station from southern and western approaches. The £300m Broadmarsh area regeneration proposals; which are ongoing and focus on the relocation of Nottingham's consolidated higher education colleges to a purpose built facility, reconstruction of the bus station closer to the rail station, private sector-led refurbishment of one of the city's two main shopping centres (see Figure 2-8) and the Heritage Lottery-funded refurbishment and expansion of Nottingham Castle and its visitor facilities; present considerable scope to upgrade the primary pedestrian, bus and cycling thoroughfares into the city centre from the south and south east of Nottingham (via the station).

Figure 2-8: Nottingham Broadmarsh area regeneration proposals



2.45 Mainline rail station connectivity into the two city centres is highly significant in the context of the changing role and nature of the high streets in UK towns and cities. While both Derby and Nottingham City Councils recognise that the way people use their city centres is changing, they are both currently characterised by a rich mix of land uses, comprising:

- Independent retailers, personal and professional services, and recreational / dining / night time economy uses, which typically occupy the oldest parts of each city, often in locations where the medieval street pattern lends itself to pedestrianisation/lower levels of vehicle access and high-quality public realm.

- Major indoor shopping centres and key anchor stores, which are currently experiencing fierce competition from online vendors. These shopping centres have dramatically impacted upon the original 'high street' retail areas, and both cities are struggling with higher levels of vacancies and downward pressure on rents linked to a contraction in the total required retail space. Increasingly, land uses in these locations are being converted to a mix of food, convenience retail and offices.
- University and other higher education land-uses, which have established dedicated areas of each city that are highly visited and utilised by students and younger people.
- Cultural centres and theatre/arts districts, which are sited close to major city squares and public spaces.

Taken together these kinds of improvements will **significantly strengthen the quality and interchange** potential around the city's rail and bus station, helping to deliver the **£2bn of investments planned and ongoing** as part of Nottingham's Southside regeneration programme (see Figure 2-9).

Figure 2-9: Nottingham's Southside regeneration totals £2bn of investment



2.46 These considerable city-centre focused growth and regeneration opportunities, in both Derby and Nottingham, are a key focus of our Transforming Cities proposals. They complement wider sustainable connectivity improvement opportunities along key growth corridors that link new homes and employment locations together in each city.

Derby and Nottingham's TCF2 bid seeks to reduce transport pressures from growth and past underinvestment through:

Bus priority at key junctions and pinch points along key city centre access corridors and key employment locations in both Derby and Nottingham, including the City Hospital in Nottingham and Pride Park in Derby. Investment will encourage public transport uptake, reduce delays to timetabled services, and help to alleviate peak hour rail service overcrowding and traffic congestion.

Smart ticketing improvements including Robin Hood multi-operator fare payment integration in Derby, building on the existing Spectrum platform, Robin Hood Top-Up and dispensing at Tram Ticket Vending Machines, and EMV validators on buses, to consolidate existing fare payment and local public transport ticketing options and reduce the need for time-consuming cash payments and ensuring best value fare-capping for travellers.

Expansion of existing/delivery of additional Park & Ride sites to encourage public transport uptake and intercept vehicle traffic away from key routes into Derby and Nottingham.

Station area and public realm improvements to establish significant interchange hubs in both Derby and Nottingham to complement forthcoming rail investment by new franchise holder East Midlands Railway.

Cycle route improvements to key employment and underserved residential locations including Boots campus/Nottingham Science Park, East Midlands Gateway / Airport, Derby Raynesway and Infinity Park to address the lack of infrastructure highlighted by employees and reduce congestion on the highway network at peak times.

3: Improving access to employment, productivity and inclusivity

2.47 Both Derby and Nottingham are tightly bounded administrative areas, with constrained availability of housing and commercial sites. As shown in Figure 2-2, development pressure has increased between the two cities, and on the urban edges West and South of Derby and East and South of Nottingham. Figure 2-10 provides further detail of the major Derby-focused growth locations, accelerating the delivery of which is a key objective for our Transforming Cities Fund programme. Figure 2-11 shows where key Homes England Action Plan sites within the Nottingham urban area are located in relation to the city and our Transforming Cities Fund packages.

2.48 Common to many of the major employment growth locations in the Derby and Nottingham area, the existing residential communities adjacent to these locations typically have an older demographic, are relatively prosperous, and have lower levels of unemployment. This reflects a key challenge that existing major employers, including East Midlands Airport, face - they find it increasingly difficult to recruit locally and have to advertise jobs more widely in order to fill them.

Figure 2-10: Derby major housing and commercial growth locations

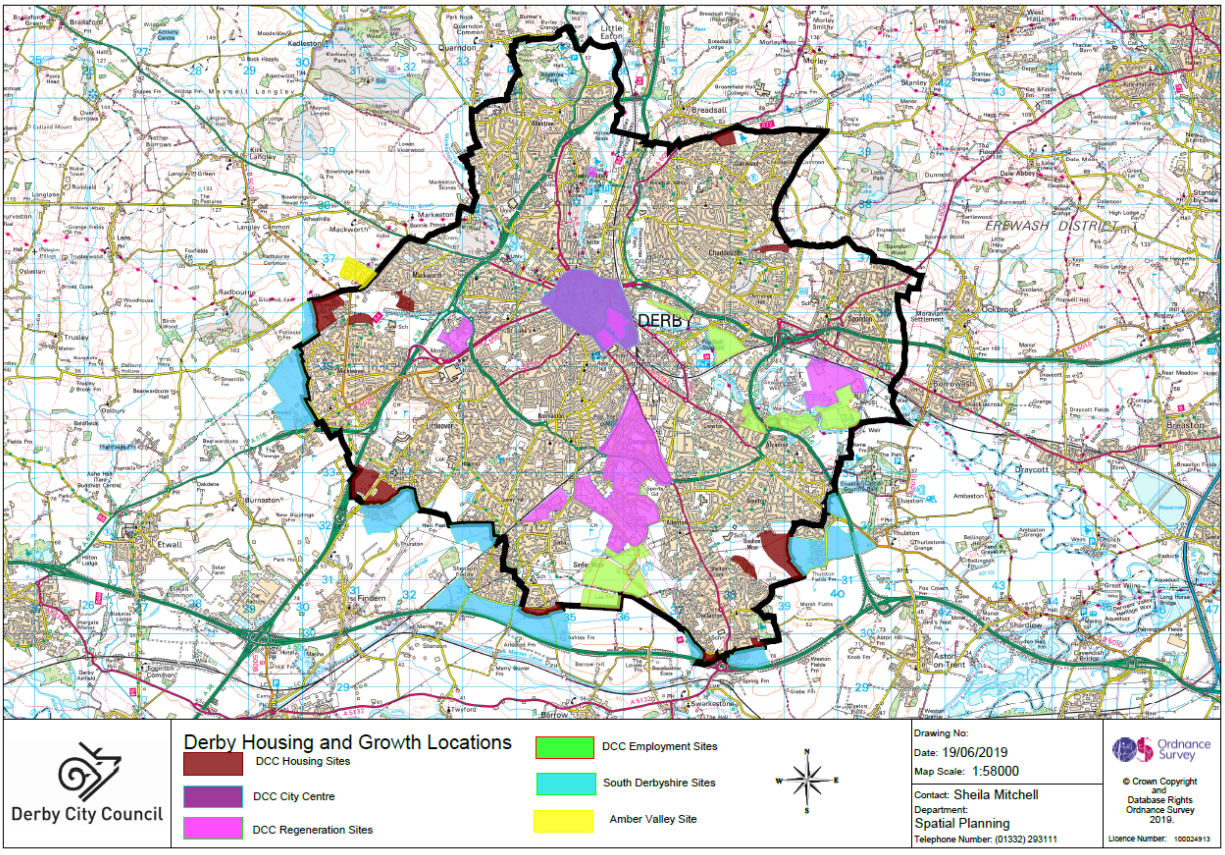
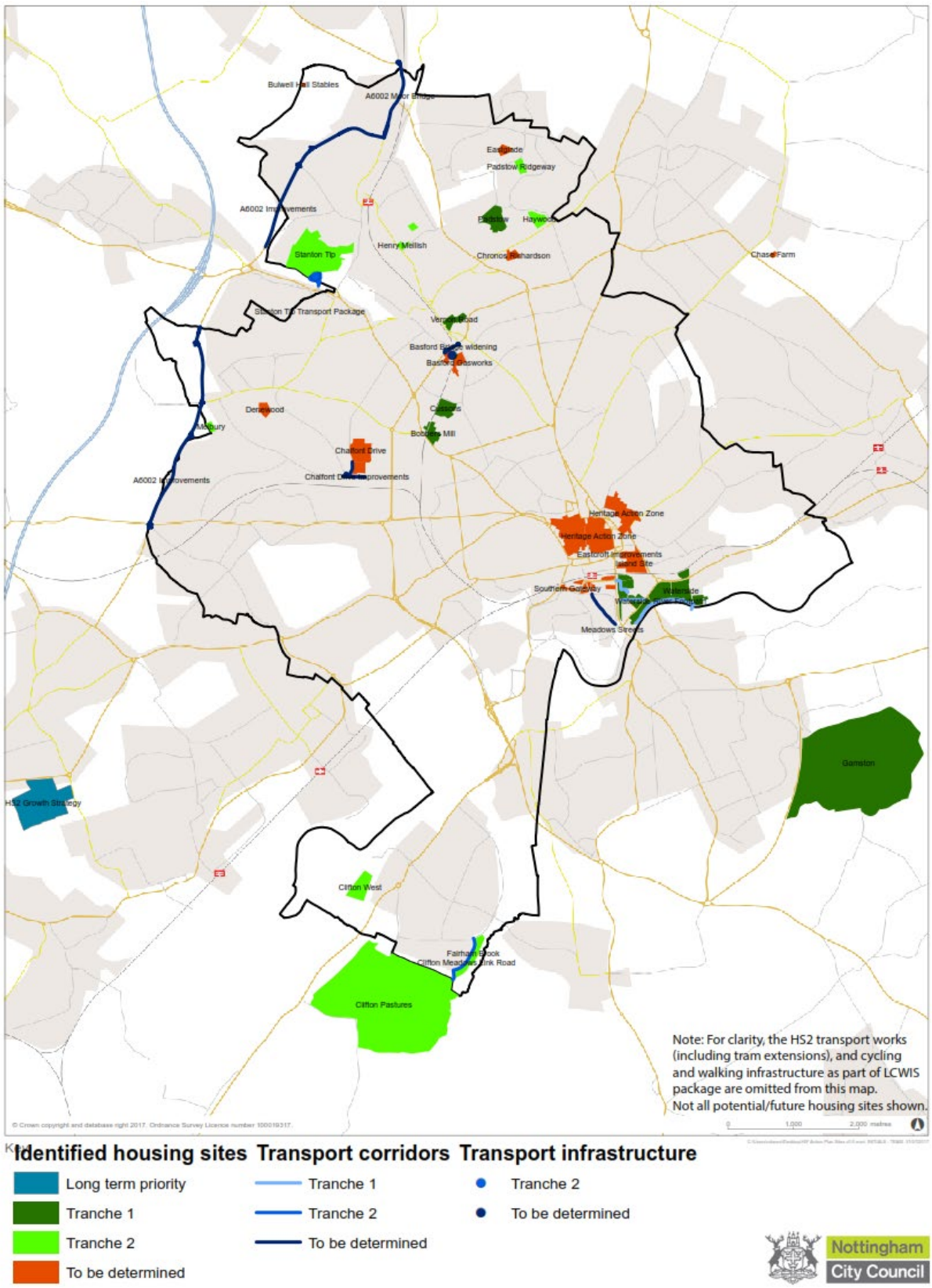


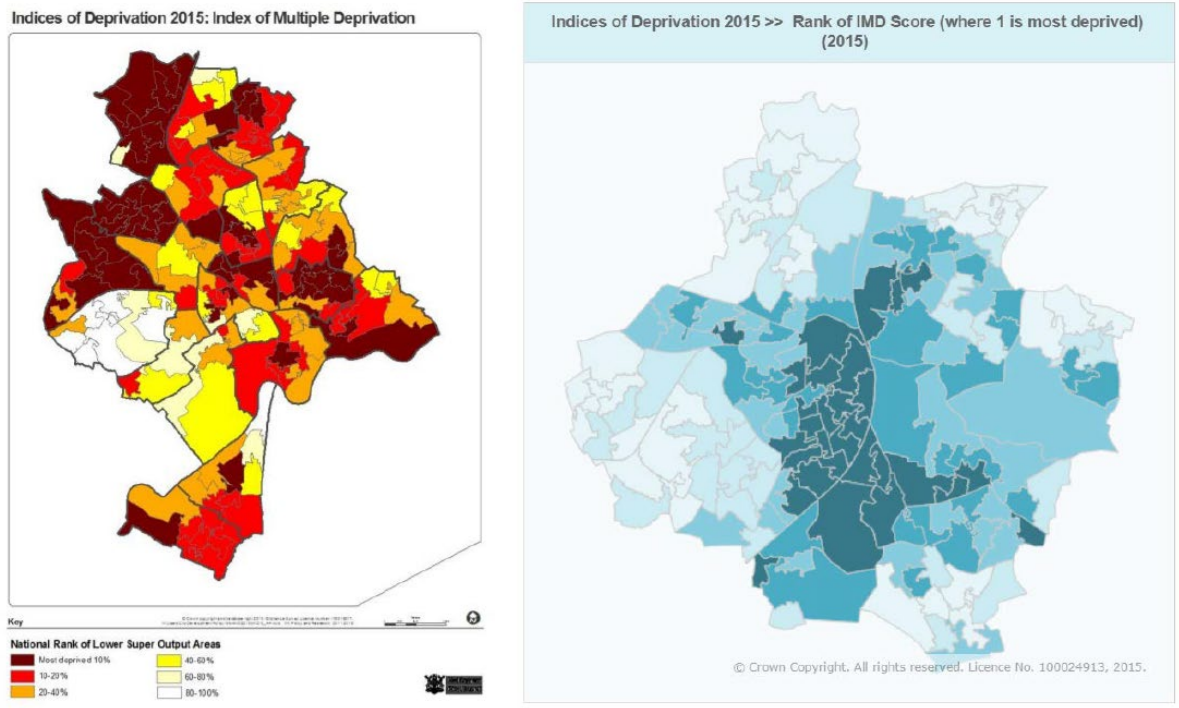
Figure 2-11: Nottingham HCA Action Plan sites and TCF relationships



2.49 Over coming years employers located at the East Midlands Gateway rail freight distribution centre, and both the cities' Enterprise Zones, are anticipated to recruit substantially and are expected to experience similar issues. This is despite both Derby and Nottingham having areas of high unemployment and deprivation (relative to both national averages, and surrounding areas), where people need reliable work but consistently fail to take opportunities in these out-of-town locations – often due to a lack of direct and affordable connectivity.

2.50 The key areas of need can be identified as those with a high index of multiple deprivation score. Figure 2-12 shows these are found primarily in the far north, east, and south and west of Nottingham (left image), whereas in Derby (right image) the central swathe of the city running north-south contains the main locations with high level of deprivation.

Figure 2-12: Index of Multiple Deprivation for Nottingham (L) and Derby (R)



2.51 Reflecting these trends, Nottingham has one of the highest rates of 'Net Underemployment' in the country. There is a mismatch between available jobs and existing skills - resulting in lower employment rates and lower average salaries than both the East Midlands and National averages. Furthermore, jobs are spread unevenly around the Derby and Nottingham area, with large employment sites in the city centres of both Derby and Nottingham, but also around the ring roads of both cities, and at East Midlands Airport and Gateway Logistics Park. The airport alone employs

approximately 8,000 people, 46% of whom live in Derbyshire or Nottinghamshire. However, it remains a challenging place to reach by public transport or bike from a number of residential areas due to the need for multi-modal or multi-stage journeys, the required journey distance and time (15 miles from Nottingham and 13 miles from Derby city centres), and the need to travel through congested areas of the road network (A453, M1, A50, A6).

2.52 If the economic benefits of growth in the Derby and Nottingham area are to address the high levels of multiple deprivation prevalent in both cities, then extending the travel horizons of residents in these areas - improving their access to employment, learning, healthcare and training opportunities is critical. Key to this is improving the skills match between unemployed people and the jobs available across the area, as well as improving direct connectivity to jobs in key growth locations.

2.53 On this basis there is a clear need to expand and extend the cities' mass transit systems, key bus corridors and associated linkages and feeder routes to link new and existing communities with the following key employment growth locations that are depicted in Figure 2-1:

- **Infinity Park Derby** (100 ha) which is being developed as a research and innovation park, complementing the adjacent Rolls-Royce Aerospace Campus. It is at the heart of the South Derby Growth Zone and has Science Park status through its link to the University of Derby.
- **The Nottingham Enterprise Zone** (113 ha) being developed to create a UK centre for innovation in health, beauty and wellness, which is linked to the existing Boots campus and Nottingham Science Park and MediPark developments.
- **East Midlands Airport** is already a critical economic driver, generating an estimated £239m in Gross Valued to the economy (Gross Value Added, or GVA) each year[8]. The Airport's Masterplan[19] aims to increase passengers from 4.2m to 10 million and increase freight from 320,000 to 1million tonnes by 2040 – requiring a doubling of employees at the airport to 14,000. Yet the airport currently has low levels of public transport mode share at only 7.4%[20] and Skyline is currently the airport's only public transport link. Improving connections from the airport to both Derby and Nottingham, and the HS2 Hub Station at Toton is essential to achieving the airport's growth aspirations.

[19] Sustainable Development Plan (EMA 2015): http://www.eastmidlandsairport.com/about-us/development-plan
[20] CAA Passenger Survey Report 2015: https://www.nwleics.gov.uk/files/documents/east_midlands_airport_surface_access_strategy/East+Midlands+Airport+Surface+Access+Strategy.pdf

- **East Midlands Gateway** (280 ha) includes a strategic rail freight interchange capable of handling up to 16 trains/day and will generate up to 7,000 new jobs. It is close to Junction 24 of the M1 motorway and its delivery strengthens the commercial case for improving public transport links to the adjacent East Midlands Airport site and the existing East Midlands Parkway rail station; as well as to new and existing communities in Castle Donington, Kegworth, the south and east of Derby, and south and west of Nottingham.
- **Toton HS2 Station and its neighbouring Innovation Campus** are underpinned by a wider growth strategy that forecasts delivery of an additional 74,000 jobs and £4bn of GVA by 2043, shifting regional growth above UK averages and helping to rebalance the country's economy into lower productivity locations with higher levels of unemployment. An Innovation Campus of 180,000m^2 commercial area, generating 11,000 jobs supported by around 3,500 dwellings is the core to a string of 'garden village' developments.

2.54 There is a high-risk that delivering growth of this nature without rapid and affordable sustainable transport connections - given their locations in relation to already congested highway networks and capacity-constrained public transport services (especially the Boots Enterprise Zone, East Midlands Gateway, and the other housing growth locations in Derby and Nottingham shown in Figure 2-2) – will result in unsustainable outcomes that exacerbate the existing transport pressures identified in the previous subsection. It is also clear that, as configured, current road systems are not sufficient to enable the growth which is anticipated, nor would it be desirable to encourage higher levels of private car use to these new development locations (which are predominantly on the edges of the Derby and Nottingham urban areas.

2.55 Without providing new and improved sustainable transport infrastructure that improves local travel choices and alleviates pressure on existing road and public transport networks, viability for developers may be reduced and potential employers considering investment in the local area may be put off due to risk of not being able to attract employees. This is a significant point that informs our approach to defining the packages of schemes that will make up our future investment programme.

2.56 It also informed our co-development dialogue with DfT colleagues, through which we reflected upon the potential for TCF investment to focus on extensions to the NET tram network – both within Nottingham and across to Derby via the Toton HS2 station. Our long-term proposals are discussed further in section 3.

2.57 These will all link significant new housing and employment growth locations to the two city centres and key existing trip generators, but were not considered to be practically

deliverable within the TCF2 funding programme's timescales. Ambitious new rapid transit links like these reflect the scale of growth potential in our local area, and the confidence our Councils have in the urban regeneration proposals that are coming forward at the current time.

Derby and Nottingham's TCF2 bid seeks to improve access to employment, productivity, and inclusivity by:

Traffic signal and bus priority measures targeting locations with higher levels of deprivation – notably to the east of Derby city centre and along northern, western and eastern bus corridors in Nottingham – will deliver improved timetable reliability and help to reduce journey times for bus passengers in these areas.

Extending bus and segregated cycle facilities to lower income areas that lie to the east, west and north of Nottingham, and the south and east of Derby, in order to improve the speed and reliability of direct bus services, and the accessibility of cycling, as travel to work options for a larger number of people.

Introducing the back-office software and hardware needed for local operators to introduce a **demand responsive transport service** for East Midlands Gateway, Parkway and Airport that will connect workers and rail passengers with these major employment sites. A similar type of service is also proposed to connect low income areas of Derby with the Infinity Park employment areas. These services will link areas of Derby and Nottingham where low car ownership and indirect public transport links mean car-based travel to work is the only realistic option.

Nottingham and Derby – East Midlands Airport cycle and e-bike route improvements will help to address the lack of infrastructure that connects to this major employment site and help to connect those who do not drive with employment opportunities. This is particularly important for shift-workers and people who live in locations that are not directly connected to the airport by public transport.

Key opportunities for transforming our cities

2.58 Drawing together the key threads from this section, it quickly becomes clear how some of the mobility challenges identified could be addressed through a transformative investment programme for the Derby and Nottingham area. It is also striking how closely the growth-related opportunities identified for the area correspond with DfT's two core policy objectives of the Transforming Cities Fund.

1) Improving commuting, employment, development and economic growth; and
2) Reducing carbon emissions by use of low-carbon sustainable transport options.

2.59 Our locally-led view of key opportunities for the Derby and Nottingham area is mapped against Transforming Cities Fund objectives in Table 2-3. It highlights both:

- The type and nature of predominantly public transport, walking and cycling focused network investments that will combine to form our Transforming Cities Fund programme.
- The geographic locations of interest where our investments will be targeted to accelerate local and regionally-significant growth, and to improve new and existing residents' access to employment, learning, health and recreation opportunities.

2.60 The next section of this SOBC sets out the process we have adopted to refine these opportunities into a package of appropriate transport schemes.

Table 2-3: DfT's TCF objectives in relation to local opportunities

TCF Objectives	Key local opportunities
Invest in new local transport infrastructure to boost productivity	• Improve existing/establish new public transport routes between under-employed and deprived communities in central Derby and Nottingham to connect them with new and existing job/training opportunities. • Address pinch points and extend traffic light priority along key routes linking Derby-Nottingham, and in each city, to improve air quality via better performing public transport services relative to private car options. • Improve city centre public realm, interchange facilities and public transport/walk/cycle networks to attract and retain high calibre graduates to the universities and workforce of the Derby and Nottingham area.
Improve public and sustainable transport connectivity	• Extend bus lanes and associated enforcement to keep public transport services moving across the area, with a specific focus on heavily-congested locations with poor air quality linked to transport emissions. • Deliver high-priority cycling & walking route improvements (identified in the D2N2 LCWIP) to fill missing network links and maximise active travel safety, speeds and attractiveness for a greater proportion of everyday trips. • Improve inter-city and employment hub (airport, HS2 Hub) routes, through more integrated public transport fares and payment options, strategic cycle routes (including e-bike expressways), and new/expanded Park & Ride 'hubs' on inbound routes.
Improve access to employment sites, Enterprise Zones, development sites, or an urban centre that offer particular growth / employment opportunities	• Accelerate the delivery of 50,000 new homes in 15 strategic Local Plan allocation sites (Figure 2-2) by pre-emptively strengthening local public transport and strategic cycle route options to key employment areas. • Focus public transport and cycling investments along the corridors that link the Derby Infinity Park and Nottingham Boots Enterprise Zones to new and existing communities with requisitely skilled labour. • Strengthen public transport connectivity to the strategic East Midlands Airport/Gateway employment zone, to improve alternatives to car-based access for current and future staff and accelerate the area's growth. • Significantly improve public transport interchange facilities, and the quality/navigability of pedestrian links and public spaces that connect Derby and Nottingham's recently improved mainline rail stations with their respective city centre growth sites, bus stations and retail/cultural/employment/education/leisure facilities.

3. Strategic Case: Developing the programme

3.1 Our understanding of the local pressures and opportunities arising from recent and planned future growth, and the challenges evidenced in relation to current levels of investment in, and demand for, urban transport connectivity (as set out in Section 2) has shaped our approach to developing a programme of transformative and sustainably-focused transport investments for the Derby and Nottingham area.

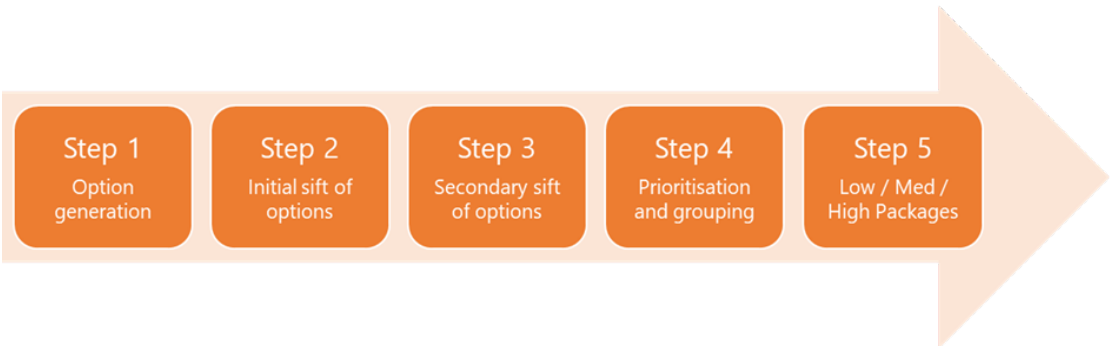
3.2 This section summarises the process we adopted to identify and develop the preferred interventions and package them together into cohesive themes and different levels of investment. The identification and prioritisation of schemes has been iterative and led by officers from both Councils with input from DfT colleagues through the bid co-development process. Both the four themes, and the scheme components they comprise, have been refined and developed since the Draft SOBC was submitted to DfT June 2019. The result is a complementary, corridor-based, suite of investment themes and schemes that are focused upon DfT's three core Transforming Cities Fund objectives outlined in the previous section of this report.

3.3 Full details on this process, including a long-list of all schemes considered, can be found in our Option Assessment Report (OAR) in Appendix A to this SOBC.

The option generation, shortlisting and selection process

3.4 Our programme development process is summarised in Figure 3-1. Initial work to develop the programme was undertaken between April and June 2019, building on the ongoing delivery of 'quick win' TCF Tranche 1 interventions that received funding approval from DfT in January 2019. This was revisited based on co-development feedback received from DfT colleagues, following submission of the Draft SOBC, and as refined scheme costings and designs subsequently became available.

Figure 3-1: Derby and Nottingham Area TCF programme development process



3.5 In preparing our proposals we actively considered the recommendations in DfT's Rebalancing Toolkit (for programmes). This ensured that, at each stage, we took into account the balance of past/proposed spending across the Derby and Nottingham area. In view of the Transforming Cities Fund priorities and guidance from DfT, we applied this insight to steer potential investments towards corridors and congested locations that accelerate growth, address local underemployment and raise productivity in deprived communities.

Ongoing stakeholder engagement

3.6 Dialogue with key local business groups, public transport operators and cycling/walking stakeholders has been ongoing throughout the TCF bid development process. It commenced in 2018 with our first EoI submission and conversations with public transport operators and users, Council Members and decision-makers, local cycling groups and the wider travelling public have continued since then.

3.7 Table 3-1 lists out the key stakeholder engagement activities that have been conducted by both Councils' officers through the course of the scheme development process. The option generation process (see step 1, below) was guided by the insights gained from these specific activities as well as:

- The D2N2 LCWIP development processes, which have included considerable engagement with the local cycling groups in Derby (Derby Cycling Group), Nottingham (Pedals) and other interested parties at three stakeholder events.
- Regular meetings with local public transport operators (including the Derby and Nottingham Bus Partnerships, which meet on a regular basis and are the mechanisms through which bus network pinch points and other bus priority measures have been identified.
- Feedback from previous local residents' and advocacy groups – including public transport users, neighbourhood groups and Council Members in both Derby and Nottingham.
- Regular dialogue with the city's major employers, business parks, Universities and Further Education institutions about the local transport issues and opportunities that affect their sites and staff/students/visitors – notably through the Derby-Nottingham Metro Growth Board.
- Engagement with private sector developers and housing/employment land promoters negotiating Section 106 contributions towards local transport infrastructure and service improvements.

Table 3-1: Stakeholder engagement activities completed during TCF programme development

Activity	Group(s)	Timing	Led by	Opportunities and issues identified
Survey	General public, local businesses, and residents	Summer 19	NCC Surveys and Data Team	Results provide insight into what has encouraged more people to cycle, what they like and don't like, and what they'd want to see investment in. The results also included how investment in cycle infrastructure so far has impacted on residents.
Ongoing bus operator dialogue	Arriva	Aug '19	DCC PT team	Feedback noting that customers using Arriva buses have benefitted from a reduction in traffic on Morledge since Derwent Street roadworks closed this road to other traffic. Requested the temporary closures and diversions were integrated into permanent highway and public realm improvements.
Ongoing bus operator dialogue	Stagecoach	Oct '19	NCC PT team	Letter of support for Leapool Park & Ride expressing interest in continued partnership to improve air quality and encourage shift towards sustainable travel choices. Stagecoach has committed to support the Park & Ride with free taster tickets and substantial discounts to major employers.
Ongoing bus operator dialogue	Trent Barton	Oct '19	DCC PT team	Letter of support for journey time and reliability improvements contained within TCF. Supported by investment in their fleet and ticketing technologies.
Presentation	Nottingham Trent Uni staff/students	Oct 19	NCC Cycling Team	Presented on proposed TCF plans and talked through examples of design standards used on the cycle network and future proposals.
Stakeholder discussion	Tramlink (NET tram operators)	Jun '19 – Nov '19	NCC PT team	Meetings and parking survey/strategic model reference case data-sharing to inform the business case development and benefit estimation for NET Tram Park & Ride expansions (Pheonix Park/Hucknall) and new sites (Wilford Lane) in Nottingham.

Activity	Group(s)	Timing	Led by	Opportunities and issues identified
Stakeholder discussion	Notts / Leics / Derbs CCs, Kegworth PC	Regular	NCC	Discussed the spread of cycle and public transport schemes around the city and wider area, collaborative working, land issues, procurement, delivery options, and how it ties in with existing programmes.
Stakeholder discussion	Local authorities, cycle campaign groups, and consultants	Jun '19	Sustrans & D2N2 LAs	Focussed on LCWIP and discussed the schemes that are being prioritised, which datasets exist, and how they will be used as part of the prioritisation process. The LCWIP programme is expected to start with TCF.
Stakeholder discussion	Gtr. Nott'm. Cycle Development Group	Every two months	Sustrans and NCC	Discussed progress of the TCF bid including its priorities, the type of infrastructure, and how the new infrastructure will be promoted to maximise use.
Stakeholder discussion	Pedals, East Mids Airport, Canal & River Trust, Env't Agency, Councils	Sept and Nov 19	NCC	Discussed the spread of cycle schemes around the city, the level of off-road segregation within the Broadmarsh element, land issues, procurement, delivery options, and collaborative working.
Presentation	Local Access Forum	July 19	NCC Cycling Team	Presented on the LCWIP and how TCF presents a funding opportunity to begin delivery. There was a particular interest in walking and public realm.
Stakeholder discussion	Local cycling campaign groups	Regular	NCC	Discussed the possibility of a new cycle bridge near Lady Bay being included as part of the TCF programme.
Overview and discussion	Active Travel Forum (Derby Cycling Group, Sustrans etc)	June '19	DCC Cycle and walking team	Presented outline of TCF and the ambitions for active travel. Discussion on potential schemes and feedback and relationship with LCWIP programme.

Activity	Group(s)	Timing	Led by	Opportunities and issues identified
Stakeholder discussion	Disability Inclusion Group	Jun '19	NCC PT team	Discussed accessibility of public transport information (colour palettes in digital signage, making information available via audio applications). Welcomed investment in bus priority and more reliable services.
Stakeholder discussion	Leader, portfolio holder, and ward members	Regular	NCC	Discussed bid approval, how TCF aligns with wider Council priorities, design detail within ward areas, local priorities and problems, and citizen information.
Stakeholder discussion	Leadership briefing	Regular	DCC	Discussed bid approval, how TCF aligns with wider Council priorities, design detail within ward areas, local priorities and problems, and citizen information.
Stakeholder discussion	Cross Party briefings	Regular	DCC	Discussed bid approval, how TCF aligns with wider Council priorities, design detail within ward areas, local priorities and problems, and citizen information.
Presentation	Regeneration and Housing Overview and Scrutiny Board	Regular	DCC	Presented on proposed TCF plans and talked through examples of projects for mass transit, bus priority, cycle network and future mobility fund proposals.
Presentation	Derby Renaissance Board (Derby's Economic Partnership inc CoC, MC, Uni, NHS Trust, developers	Regular	DCC	Presented on proposed TCF plans as part of a larger transport-focused meeting. Talked through examples of projects for mass transit and animating the city centre and linking it to Pride Park. Also considered the impact of bus priority, cycle network and future mobility fund proposals on sustainability and congestion. DRB is Derby's Economic Partnership with city leaders predominantly from the private sector (including the Chair).

Activity	Group(s)	Timing	Led by	Opportunities and issues identified
Presentation	Metro Delivery Board	Regular	DCC and NCC	Presented on proposed TCF plans and talked through examples of projects proposals for packages and project approach. Membership includes the City Councils and surrounding District/Borough Councils with Derbyshire County Council in attendance.
Presentation and stakeholder discussion	Strategic Bus Partnership (with private sector operators + local passenger group)	Quarterly	DCC	Presented outline of TCF and the ambitions for public transport, bus priority corridors, smart ticketing, pinch points and DRT. Active engagement from all participants, challenged some early assumptions and helped to shape our corridor ideas. Chaired by Cabinet Portfolio Holder.
Stakeholder discussion	Green Forum (with Sustrans, Friends of the Earth, Greenpeace, Local campaign groups)	Summer /Autumn '19	Local campaign groups	Overview of TCF as part of wider discussion on climate change, climate emergency and local transport issues. There was significant interest and questions on active travel and public transport to tackle air quality, congestion and mode shift. Challenged improvements in access to the airport, explored freight movements and strongly supportive of cycling and walking options.
Stakeholder discussion	East Midlands Rail (EMR)	Sept '19	DCC	Overview of TCF as part of the new franchise arrangements with EMR (Abellio). Detailed discussion with interest from EMR on bike hubs, EV charging and public realm in relation to Derby station and their planned investment in the hub stations.
Presentation	National Infrastructure Commission	July '19	DCC	Overview of TCF as part of a wider presentation on the development of an Integrated Infrastructure Plan for Derby. Discussion on the ambitions of TCF and its relationship to the wider future infrastructure needs of the city. Attended by NIC with Centre for Cities, Nottingham Trent University and Milton Keynes City Council.

Step 1: Option Generation

3.8 Initial scheme generation was undertaken by the Councils through a series of collaborative workshops, drawing on insights from our stakeholder engagement activities.

3.9 Whilst many of the options generated focused on improving sections of the transport network within the Derby and Nottingham City Council administrative areas, several also aim to improve capacity, journey times and the range of connectivity options into both city centres from outlying areas – including those which sit between Derby, Nottingham and the East Midlands Airport employment zone. As such it was essential that we liaised with officers at Derbyshire County Council, Nottinghamshire County Council and Leicestershire County Council to ensure a good strategic fit and compatibility with priority interventions they are currently taking forward.

3.10 At various stages throughout the option generation process, new schemes and transport investment options have been identified and added to a long-list. Each of these was subjected to the option sifting process described below.

Long-listed scheme options

3.11 An MS Excel spreadsheet containing details of all initially identified schemes was prepared to keep track of possible transport system improvements and facilitate the multi-criteria appraisal of the schemes. A total of 121 possible schemes were developed through the long-listing process, covering the following categories:

- Bus priority / reliability improvements;
- Cycling and walking schemes;
- Interchange improvements;
- Mass transit schemes (e.g. tram);
- Park and ride schemes;
- Passenger information provision;
- Public realm enhancements;
- Road user safety;
- Public transport ticketing; and
- Other interventions.

3.12 The long-list of scheme options can be found in Annex A to the Option Assessment Report (see Appendix A to this SOBC).

Step 2: Initial sift of options

3.13 The long-listed schemes were sifted through a two-stage process to identify a prioritised set of options that would be developed further and framed around key investment themes. As explained in section 3 of the Option Assessment Report, a total of eight criteria were developed for this process, based on the core objectives and appraisal criteria defined in:

- DfT's Transforming Cities Fund Supplementary Guidance for Shortlisted City Regions: Tranche 2.
- DfT's Early Assessment and Sifting Tool (EAST).
- Derby and Nottingham City Council's adopted Local Transport Plans (Derby Local Transport Plan, LTP3 - 2011-2026 and Nottingham Local Transport Plan: Strategy 2011 – 2026).
- Emerging Local Cycling and Walking Infrastructure Plans (LCWIPs).
- The D2N2 LEP's Strategic Economic Plan and Emerging Local and Industrial Strategy.

3.14 A scoring framework was developed to apply greatest weight to schemes which directly meet the two key TCF objectives defined by DfT. It also included a pass/fail assessment of deliverability, given the schemes must be completed by April 2023:

1) Deliverability within TCF timescales (Updated to be a Pass/Fail criterion based on DfT's co-development advice);
2) TCF 1 - Supporting commuting, employment, development and economic growth;
3) TCF 2 - Reducing carbon emissions (low carbon sustainable modes);

3.15 These three criteria were applied to the long-list of 121 schemes, which resulted in the remove of 22 options from consideration – primarily on delivery certainty within the TCF timescales (see section 3.9 in the Option Assessment Report for more detail).

Step 3: Secondary sift of options

3.16 The secondary sift considered the remaining 99 scheme options in relation to the three criteria set out above, and five further criteria which sought to identify high-priority

interventions based on strategic fit with local objectives, and help to eliminate schemes that are expected to yield lower benefits. The additional five criteria applied were:

4) Improved connectivity between cities & suburbs;
5) Supports delivery of new homes/employment sites;
6) Political and public acceptability;
7) Local policy fit (LTP, LEP & LCWIP); and
8) Anticipated Value for Money.

3.17 More detailed explanation of these criteria, and how they were applied through the secondary sifting process can be found in Table 3-1 and Table 3-2 in the accompanying Option Assessment Report (Appendix A).

3.18 The framework was designed to produce a score for each scheme out of a possible 45, with a maximum of 10 points each being assigned to the first two TCF criteria and up to five points for each of the second-stage criteria. A total of eight schemes were removed from consideration altogether at the secondary sifting stage, with some of these forming part of the joint Derby and Nottingham Future Mobility Zone bid submitted to DfT in September 2019 (and discussed in greater detail later in this section, under 'Additionality').

Step 4: Prioritisation and Grouping

3.19 The remaining 91 schemes all achieved a minimum secondary sifting score of 30 out of 45. Workshops involving the TCF programme team from across Derby and Nottingham City Councils drew on evidence of local transport network challenges and capacity constraints to iterate a series of spatially and thematically coherent themes. These workshops identified the following broad scheme types:

- **Highest scoring schemes** (or groups of schemes) were considered to reflect the highest priorities for the two Councils, and used to form the basis for each theme.
- **Complementary schemes** were identified which, although not necessarily high-scoring in their own right, could be delivered in tandem with high priority interventions to help broaden the benefits along key transport corridors serving Derby and Nottingham.
- **Network-wide improvements** emerged, through which investment in a single scheme could deliver widespread benefits for travellers in both Derby and Nottingham. Examples include improving back-office traffic control and real-time passenger information systems that are shared by both Councils.

3.20 These are discussed in greater detail in paragraphs 3.15 to 3.17 in the Option Assessment Report found in Appendix A. Through the process of grouping similar schemes together, 30 were merged into others, resulting in a total of 61 distinct scheme components spread across four spatially and topically relevant themes.

3.21 Table 3-2 provides more detail on each of the four themes around which the Derby and Nottingham TCF Tranche 2 proposals are structured and the key schemes associated with each one. Further information on scheme costs, match funding and contingency allowances for delivery risks can be found in Section 5 of this SOBC.

3.22 Figure 3-2 maps these in a geographic context; demonstrating their spatial and transport network relevance to strategic growth locations shown in Figure 2-2. Figure 3-3 illustrates how they correspond to Transforming City Fund Tranche 1 projects (currently underway) and our Future Mobility Zone proposals.

3.23 Figure 3-4 sets out the rationale for the programme of Tranche 2 Transforming City Fund investments and Future Mobility Zone proposals correspond to wider programmes of transport network investment initiated at local and national level.

Table 3-2: The Derby and Nottingham area Transforming Cities investment packages

Theme	Description	Key schemes
a) City Centre Connectivity and Integration	An inter-related package of walking, cycling and public transport access and interchange improvements focused on strengthening links between the primary bus and rail stations of Derby and Nottingham and key retail, employment and housing growth locations in each city centre.	i) Nottingham City Centre 'Hub' access and interchange improvements. These comprise city centre cycle routes that connect E-W and N-S links into/past Nottingham Station, wayfinding and highway priority improvements linked to the refurbishment of Nottingham Castle, enhanced rail and bus station passenger facilities, and the provision of EV charging and cycle hub facilities in and around the new Broadmarsh interchange. As well as complementing and enhancing Nottingham's Future High Street Fund proposal to ensure high quality pedestrian and cycle facilities connect with the wider network.
		ii) Significant public realm and pedestrian area improvements which complement Ai schemes and focus on enhancing walking links and the attractiveness of the Nottingham rail station, Broadmarsh Bus Station, regenerated Broadmarsh shopping centre area and the Nottingham College City Hub. The creation of a new public square in place of an existing gyratory and the delivery of prioritised bus access into the new Broadmarsh bus station will help deliver allocated retail, employment and residential developments focused in this area.
		iii) Derby City Centre 'Hub' access and interchange improvements. These comprise new high-quality walking and cycling routes between Derby rail station, the Riverlights bus station, and the main Derby intu shopping centre. These are complemented by capacity and access improvements into the Riverlights bus station for buses entering from the Morledge/Corporation Street. A dedicated busway will be delivered alongside complementary public realm improvements. Both support delivery of new residential and employment developments on land between the station and the city centre, while establishing bus priority on a key route into the city centre.
		iv) Significant public realm and pedestrian area improvements to key locations in Derby's historic and retail cores, complementing Future High Street Fund proposals the City Council has been developing. These focus upon extending high quality pedestrianised areas from St Peter's Street to include The Spot, Victoria St, Albert St and the Becketwell area. These deliberately complement schemes included in Theme Aiii.

Theme	Description	Key schemes
b) Strategic Derby – Nottingham – EMA Connectivity	Corridor-focused improvements to cross-boundary strategic cycle routes, public transport corridors and public EV charging networks that link the cities of Derby and Nottingham with major employment sites located between them – including the East Midlands Airport	i) Cross-boundary cycle routes that will be delivered in partnership with Derbyshire, Nottinghamshire and Leicestershire County Councils to establish continuous high-quality routes between Derby and Nottingham (linking Beeston and Spondon along the A6005 corridor). Derby and East Midlands Airport (via the Derby Canal Path) and Nottingham and East Midlands Airport (via the old A453 and East Midlands Gateway employment zone). All of which will connect with high quality facilities within the Cities that were delivered from LEP funding.
		ii) A jointly-procured public bike and e-bike hire scheme that delivers a sustainable network of bike hire locations across the Derby and Nottingham urban area. Hire locations will target central areas of both cities in locations where cycle network improvements are to be delivered, particularly around transport interchange 'hubs' and major employment/education sites in both cities.
		iii) Inter-urban bus lane and traffic signal priority improvements on key roads (London Rd/A6, A52, A609) linking Derby, Nottingham and East Midlands Airport/Gateway employment area to speed-up bus peak hour bus journeys. Complementary upgrades to back-office systems for area-wide Real Time Information and contactless public transport payments will improve passenger experiences and ease multi-modal journeys across the area. This will enable Arriva services in Derby to display Real time information at on-street displays.
		iv) A brokerage system that enables existing local bus operators and community transport providers to introduce demand responsive operation to services passing East Midlands Airport, the East Midlands Gateway strategic rail freight interchange, and East Midlands Parkway station. This greater flexibility will enable people who work at these locations to reduce their reliance on car & taxi trips and improve access to new employment opportunities from lower income areas of the two cities.
		v) Expansion of the Derby and Nottingham EV charging network by up to 120 additional charging posts across ~20 new locations. These include new and existing Park & Ride sites (maximising scope for 'all electric' journeys), key employment growth sites along target corridors and community facilities in locations with limited off-street parking. The high investment package allows for creation of a satellite multi-point rapid charging hub on the west of Nottingham/east of Derby, to facilitate mid-journey charging for EV owners and fleet users.

Theme	Description	Key schemes
c) Nottingham Urban Growth Corridors	Improvements to key arterial cycling and public transport routes into Nottingham that are linked to major housing and employment growth sites on the north, east and south-western edges of the city. Expanded/new, Park & Ride sites, as well as capital grants for employers located along target corridors will complement these investments and support long-term changes in travel patterns.	i) Extension to Nottingham's 'southern growth corridor' bus and ULEV lanes and cycle network provision to additionally link the Boots Enterprise Zone and Colwick/Netherfield growth areas to the city centre and each other, alongside improved rail level crossing signals (to reduce bus service delays) and improved real-time information displays at stops along this route.
		ii) Traffic signal priority improvements (for late-running buses) and linked traffic signal controls at 117 junctions across Nottingham's central and western bus corridors. This will be complemented by targeted bus lane extensions on approaches to junctions, extended real time information at bus stops/online, and upgrades to Bulwell and Victoria Centre bus stations.
		iii) Northern bus corridor improvements including: the signalisation of three new junctions and modernisation of signals at two NET/Rail level crossings, an extended bus lane enforcement camera network, bus access improvements to City Hospital, and targeted bus lane extensions on approaches to junctions along the A60, A610, A611 and B6004 bus corridors linked to the new Leapool Park & Ride site (see Civ).
		iv) Expansion of Park & Ride capacity focused on Phoenix Park (+340 spaces) and Hucknall (+up to 460 spaces) tram stops, plus the delivery of a new bus-based Park & Ride at Leapool (A60/A614 junction, +750 spaces) and a new 240 space tram Park & Ride at Wilford Lane tram stop.
		v) Expanding Nottingham's safe + segregated cycle route network based on the LCWIP prioritisation process: a new/upgraded River Trent crossing allowing commuter and leisure trips between Lady Bay, the Waterside regeneration area through to the City Centre via Nottingham's Eastern Cycle Corridor, a new 'greenway' linking the City Hospital and Hucknall, upgrading existing river/canalside routes, cycle lane improvements close to the Harvey Hadden cycling circuit, and extending dedicated off-carriageway cycle lanes out to housing/employment growth areas in N & E Nottingham.
		vi) Capital funding made available as match-funded grants to local businesses wishing to improve sustainable travel facilities (shower and changing facilities, cycle parking, EV charging capacity) at their workplaces. Funding will be distributed in response to applications received from local businesses generated through a (separately funded) workplace travel engagement service.

Theme	Description	Key schemes
d) Derby Urban Growth Corridors	Improvements to key arterial cycling and public transport routes into Derby, linked to major housing and employment growth sites to the south and west of the city. New Park & Ride sites, as well as capital grants for employers located along target corridors complement these investments and support long-term adoption of more sustainable travel patterns.	i) Development of up to four new Park & Ride sites to the north (A61/A38), south (A50, Boulton Moor), east (A52 Megaloughton Lane), and west (Uttoxeter Road, Mickleover) aligned with complementary bus lane extensions and traffic signal priority for bus services operating from these sites into the centre of Derby. All sites are close to major existing employment/growth locations, which will themselves benefit from improved public transport services to the Park & Ride, as well as ped/cycle network improvements aimed at people walking and cycling to catch P&R buses.
		ii) An electric Rapid Transit (eRT) providing a direct high capacity route linking Pride Park employment area (10,000 employees) and football stadium with the rail station and bus station, along a new Derby city centre busway (Aiii) and the Cathedral Quarter in central Derby, linking key locations in the city centre, including areas of new residential growth. eRT also provides a direct link between the city centre, bus station, rail station and Pride Park employment zone (approximately 10,000 employees). This will be complemented by capital investment in extended bus service priority (achieved through targeted junction improvements and signalised priority) along seven 'Partnership corridors' and the city's ring road, to align with service improvements being agreed with local bus operators. It will also provide brokerage systems and back office support for a Demand Responsive bus service (similar to the Arriva Click model) to link the Infinity Park growth area to major employers in Sinfin (Rolls Royce) and Wilmorton (Bombardier) as well as the city's main rail and bus stations.
		iii) High priority cycle network improvements, which include a dedicated off-road route from the Mickleover housing growth area to Derby city centre and similar quality routes from the city centre to the Raynesway employment area to both the north (Chaddesden) and south (Pride Park/Wyvern Centre) sides of the A52 dual carriageway. This will substantially extend and improve existing traffic-free cycle routes between residential and employment areas in Derby.
		iv) Capital funding made available as match-funded grants to local businesses wishing to improve sustainable travel facilities (shower and changing facilities, cycle parking, EV charging capacity) at their workplaces. Funding will be distributed in response to applications received from local businesses generated through a (separately funded) workplace travel engagement service.

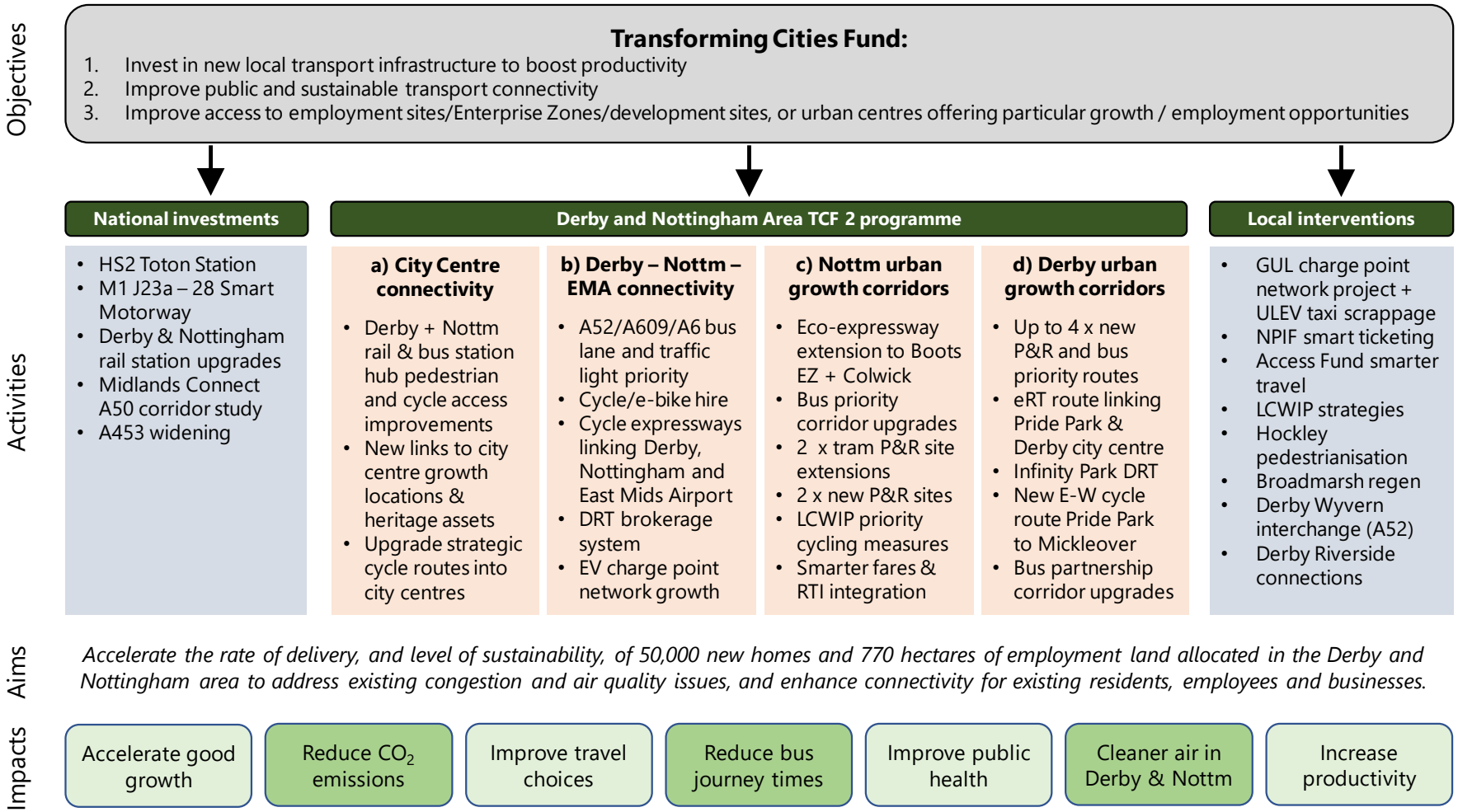
Figure 3-2: Map of Derby and Nottingham area TCF Tranche 2 investments



Figure 3-3: Map of TCF Tranche 1 investments and Future Mobility Zone proposals



Figure 3-4: Derby and Nottingham Area Transforming Cities Fund Programme rationale



Omitted schemes – Derby MRT network and NET Tram extensions

3.24 As noted at the end of Section 2, both Councils have aspirations to extend the coverage of mass rapid transit routes across Derby and Nottingham.

Derby Mass Rapid Transit

3.25 There is an aspiration to connect Derby to the planned Toton HS2 station, and Nottingham by an extension of the existing NET system. Over time we anticipate this could provide the stimulus to develop a tram network within the Derby urban area. While the scale of work involved was recognised to be outside of the scope of TCF2 at an early stage, and as such any proposal for this has been omitted from this SOBC, it is important to highlight our long-term aim.

3.26 We have instead focused our TCF2 proposals upon establishing Derby's immediate ambition – which is to develop a network of Electric Rapid Transit (eRT) routes. This would bring a transformative public transport system to the city and deliver additional, prioritised public transport routes with rapid and direct services - utilising parts of former railway lines and land currently held for highway developments, along with significant lengths of our existing urban highway network.

3.27 Our proposal is to deliver a dedicated rubber-tyred rapid transit route that is served by electrically-powered vehicles of a similar style and quality to Belfast's Glider (Figure 3-5). Phase 1 of a planned network is included within Theme Dii of this bid. This seeks to add direct connections across the city centre, utilising areas that are currently closed to traffic, and amending other parts of the highway to ensure priority.

3.28 If funded through TCF2, our first eRT 'shuttle' line will operate between the Pride Park employment area, Derby Station, Bus Station, city centre, and Cathedral Quarter urban regeneration area. This will help to integrate the rail and bus stations, key locations in the city and pride park (football stadium, Arena, and existing Park & Ride site). It will also deliver a central spine from which subsequent routes can radiate.

3.29 The potential for expansion of an eRT network over the next 10 to 20 years would transform the ability to connect areas of suburban housing growth and key employment zones with the city centre. Whilst the full potential extent of the eRT system has not been included in this bid, the possible future growth and impact is exciting in terms of connectivity and support for economic growth.

3.30 It is possible that over time this could evolve to become a network of tram routes – potentially tying in with the NET tram network in the event it is extended to Derby from the Toton HS2 station area and growth hub.

Figure 3-5: Belfast's Glider achieved 30% passenger trip growth in its first year



Nottingham tram network extensions

3.31 Nottingham City Council's leadership recently approved funding for development work to scope and consult publicly on NET Tram network extensions (Figure 3-6). These proposals recognise the tram network's importance in growing public transport use in Nottingham by over 15% since the city's first line opened (2005), and that 30% of NET trips were formerly undertaken by car/Park & Ride. The next stage of work will develop Outline Business Cases for extending tram lines to the following destinations:

- Gedling - initially to the city's existing Racecourse Park & Ride site east of the city.
- The proposed HS2 Toton station location in Broxtowe.
- Clifton South housing growth location - where a route alignment is preserved in plans for the Fairham pastures development area.

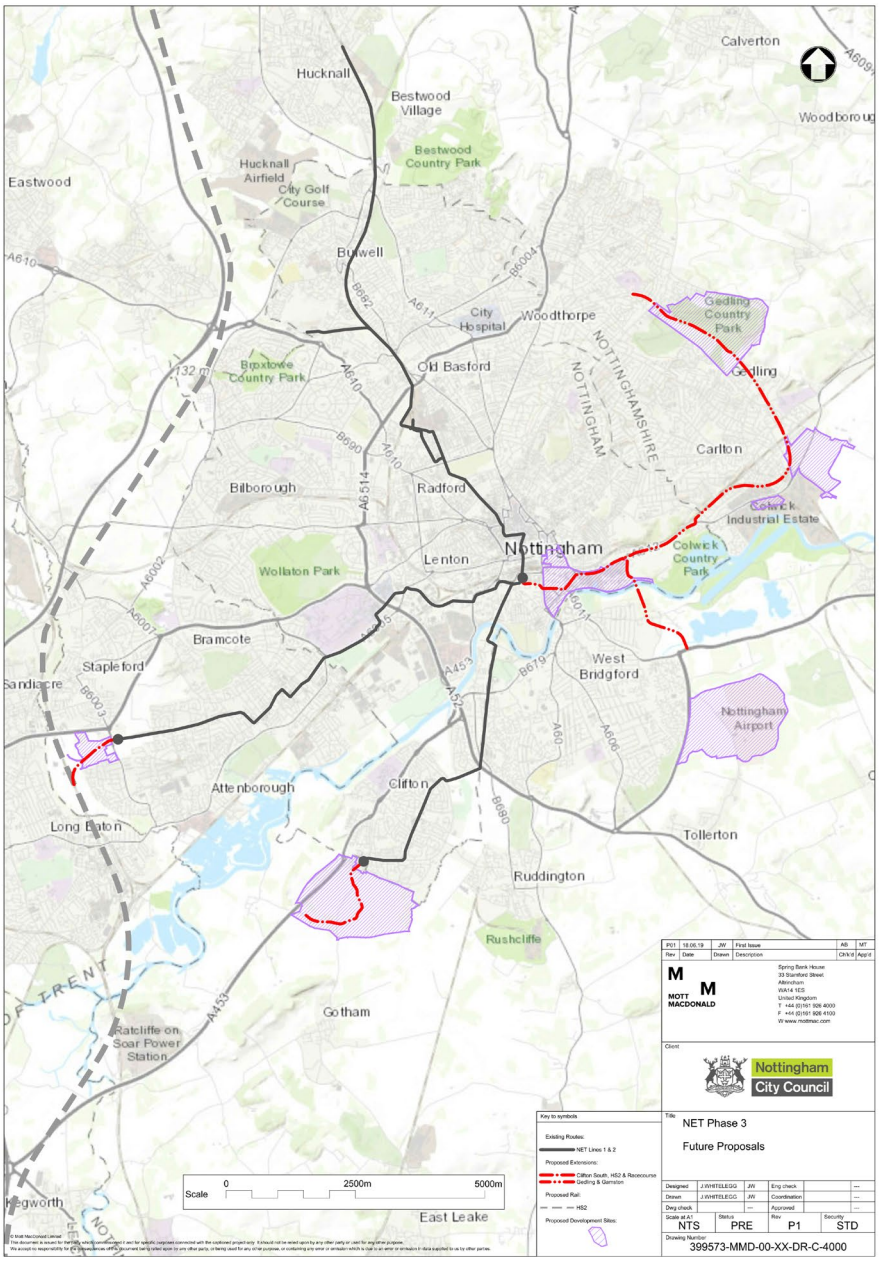
3.32 In addition, the Council will be supporting Broxtowe Borough Council's work to scope further NET tram network extensions further north from Hucknall towards Kimberley and Langley Mill. Together these proposals are expected to:

- Generate long-term employment growth of up to 8,000 jobs in Nottingham, boosting the local economy by £300m per year (CBER).
- Connect the Waterside regeneration area south east of Nottingham city centre, where 3,000 homes and 150,000 sqm of employment land is planned.

- Connect the new HS2 station at Toton, which is expected to be a catalyst for 74,000 additional jobs and a £4bn GVA uplift in the East Midlands that is predominantly focused upon well-connected growth around the HS2 station.
- Support the delivery of 2,500 new jobs (on 1000,000 sqm of employment land) and 3,000 homes to the south west of Nottingham at the Fairham Pastures site (allocated in Rushcliffe's Local Plan).

3.33 These outcomes align directly with Nottingham's Council Plan, and our commitment to make Nottingham the country's first carbon neutral city – by 2028.

Figure 3-6: NET Tram network extension proposals



Scheme development and funding support required

3.34 Dialogue with DfT colleagues through TCF co-development has highlighted the need for external funding commitments over a longer timeframe than is possible through the Transforming Cities Fund. These will fund scheme development beyond Gateway Stage 1 (Outline Business Case) to cover the securing of powers and consents to build and operate the tram extensions in Nottingham and expand the scope of the proposed eRT network in Derby (Stage 2). The cost of doing this in Nottingham is estimated at £5.1m and expected to take until Spring 2023.

3.35 Early commitments, and in-principle funding approvals for the delivery of these new rapid transit routes would aid both Councils ability to meet our sustainable growth ambitions.

Step 5: Definition of Low/Med/High investment packages

3.36 Many of the components which make up each theme can be scaled to reflect the level of funding made available through the TCF. Based on co-development guidance received from DfT post-submission of the Draft SOBC, the Derby and Nottingham TCF programme team refined the schemes presented earlier in 2019 so they align more closely with approximate per-capita funding values already allocated to major metropolitan areas.

3.37 We applied these values to the combined workday population of Derby and Nottingham (1.4m people), of whom around 1.1m people are expected to benefit on a daily basis given the widespread nature of our proposed TCF interventions. The remaining 0.3m people are still expected to benefit, albeit on the less frequent occasions they travel into Derby and Nottingham, or to the East Midlands Airport growth area.

3.38 This work coincided with firmer cost estimates becoming available for some schemes, and resulted in a reduction in the total value of the Derby and Nottingham TCF programme. As such, the scheme components in each theme now broadly reflect the following overall 'DfT capital funding requirement' bid values[21]:

- Low: £100.46m (£71.75 per head of the 1.4m Derby & Nottingham workday population across the whole of the TCF programme period to Spring 2023)
- Med: £131.16m (£93.68 per head)

[21] Excluding match funding contributions, but including contingency allowances for risks and construction inflation associated with delivery costs.

- High: £160.78m (£114.84 per head)

3.39 Based on an expected TCF funding award timescale for early Spring 2020, this equates to between £24 (Low) and £38 (High) per capita of workday population per annum.

3.40 Within each theme the highest priority / most deliverable schemes (as evidenced in Annex A of the Option Assessment Report found in Appendix A to this SOBC) are afforded greatest priority through their inclusion in the Low funding package. In many cases, these schemes are most closely linked to near-term growth proposals (e.g. the Derby and Nottingham city centre public realm improvements), so also attract higher levels of secured match funding from local and private sector sources.

3.41 Schemes which are considered marginally lower priorities, but which remain readily deliverable within TCF timeframes, have been included in the Medium investment package. The High investment package includes schemes which are currently less-well developed, and therefore come with higher degrees of cost and delivery uncertainty. If funded both Councils are confident in their ability to deliver the High package of investments, since many simple scale the extent of bus and cycle lane proposals included in the Medium Package over longer corridors, but the need for further scheme development in years 1 and 2 of the TCF programme is recognised.

3.42 A full breakdown of what we anticipate will be delivered in each of the Low/Med/High investment packages has been provided on a theme-by-theme basis in the next sub-section of the SOBC.

4. Strategic Case: Finalised TCF packages

4.1 This section details the specific schemes which make up the proposed Low, Medium and High investment Transforming packages of our Transforming Cities Fund programme for Derby and Nottingham. These are grouped into the four themes described in Section 3 of our bid, each of which has been presented with maps and visuals that highlight where and how we anticipate the funds being targeted in relation to local housing and employment growth locations. We have also explained the anticipated impacts associated with each package in relation to the Transforming City objectives and local challenges and opportunities discussed in Section 2.

4.2 The costs presented in Table 4-1 to Table 4-4 reflect the totals for each theme component, and are inclusive of DfT Capital, local and private contributions, and allowances for quantified risks and inflation. They have been rounded to one decimal place for ease of presentation, but when summed across each of our TCF themes should tally with the totals presented on a theme-by-theme basis in the Financial Case (Section 6) for this SOBC.

Theme A: City Centre Connectivity and Integration

4.3 Theme A's investments are focused on improving and upgrading the quality and extent of walking and cycling connections between Derby and Nottingham's main railway stations - both of which have been upgraded to accommodate more trains per-hour in recent years - and their respective city centres. Alongside major public realm improvements linked to ongoing and planned city centre regeneration projects, the new walking and cycling links will benefit the significant numbers of people who regularly traverse Derby and Nottingham's central areas.

4.4 In both Derby and Nottingham, these interventions are focused on enhancing the quality and easy of interchange between key 'Transport Hub' locations, city centre destinations and attractions, and major employment centres and retail districts.

4.5 Table 4-1 and Figure 4-1 shows how Themes Ai and Aii complement each other, and are focused upon improvements to the centre of Nottingham, while Themes Aiii and Aiv are also complementary and similarly focused on the centre of Derby.

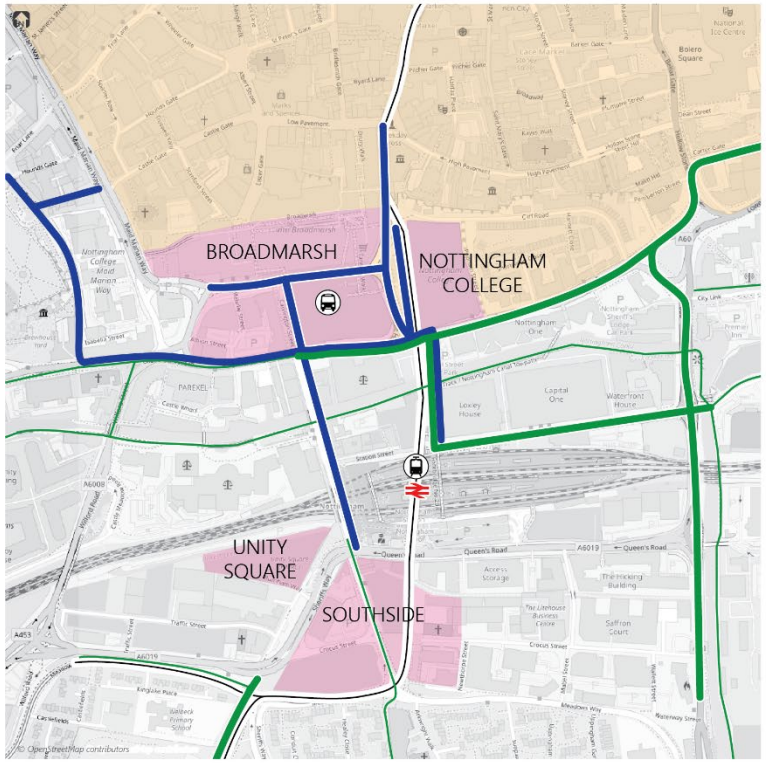
Table 4-1: Low/Med/High breakdown of Theme A scheme components

Component		Description	Low package		Medium package		High package	
			£m	Deliverables	£m	Deliverables	£m	Deliverables
i	Nottingham city centre interchange hubs	Nottingham rail and Broadmarsh bus station, and Castle area walk & cycle infrastructure improvements to improve sustainable transport links to the regenerated station area in order to match investments already being delivered to the city's bus and rail stations.	6.7	• Canal St East: 0.5km 2-way dedicated cycle route including Trent St, Skills Hub, 0.3km City Link access improvement + Bellar Gate shared path • Station St: 0.4km cycle lanes, toucan crossing + Shared Path to Canal St along London Rd. Taxi rank move to install Trent St cycle contraflow • 1.2km Queens Bridge Rd, Fishergate and Castle Blvd East, Canal path cycle route provision/extension/upgrade. • Wayfinding + Broadmarsh EV charging	8.8	• Low package • 1.5km Tollhouse Hill and Talbot St / Poynton St / Wollaton St cycle routes	10.9	• Low + Med package • Revised traffic management and public realm works around Nottm Castle
ii	Nottingham city centre public realm	High quality public realm improvements to complement Broadmarsh regen and enhance walk links between main rail/bus stations and the city centre	20.7	• 370m Carrington St public realm upgrade (1,550sqm) • 250m Colin St upgrade (3,000sqm) • 450m Middle Hill upgrade (2,100sqm) • Sussex St upgrade (5,650sqm)	23.1	• Low package • 300m Castle Rd - Broadmarsh West public realm upgrade	23.1	• Low + Med package

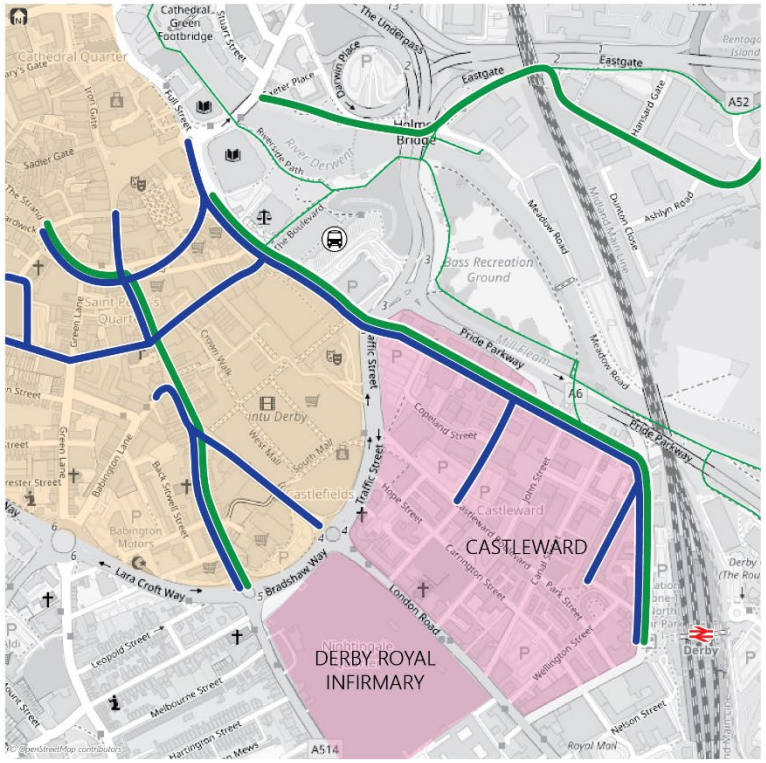
Component		Description	Low package		Medium package		High package	
			£m	Deliverables	£m	Deliverables	£m	Deliverables
iii	Derby city centre interchange hubs	Riverlights bus station / Morledge bus access improvement + RTI upgrade, coupled with city Centre to rail station walk / cycle / PT improvements	5.8	• 3 x junctions with improved bus station access signal priority • 12 x RTI kiosks • 1.3km public realm enhancement • 1.3km cycleway • 160m bus lane	8.4	• Low package • Minor bus station apron geometry change • Corporation St traffic restrictions • Extra 1 x bus priority junction	10.0	• Low + Med package • Major bus station apron geometry change • 24 x RTI kiosks • 2.86km cycleway • +1.35km bus lane • Extra 1 x bus priority junction
iv	Derby city centre public realm	Key Transport Interchange and Public Realm Improvements within the core of Derby city centre	6.2	• 1.85km public realm upgrade • 0.6km city centre cycleway • 0.2km bus/cycle/taxi lane • 2 x junctions improved (The Spot) • Upgraded bus interchange (The Spot)	8.3	• Low package • +0.35km public realm upgrade • +0.1km city centre cycleway • Upgrade London Rd/Osmaston Rd bus interchange • New Becketwell public square)	11.5	• Low + Med package • +0.8km public realm upgrade • +0.3km city centre cycleway • 0.25km restricted access (buses) • 0.15km bus/cycle contraflow lane • +2 junction upgrades • Victoria/Albert St bus interchange upgrade

Figure 4-1: Map of Theme A – City Centre Connectivity and Integration proposals

NOTTINGHAM



DERBY



Key

Urban area
- City centre area
- Growth area

Existing infrastructure
- Railway Station
- Bus Station
- Tram Stop
- Tram Line
- Cycle routes

Proposed infrastructure
- City centre public realm and walking improvements
- City centre cycle route improvements

Ai - Nottingham city centre interchange hubs

4.6 The components which make up Theme Ai focus on significantly improving the quality and experience of interchange between Nottingham's key 'Transport Hubs' immediately to the south of the city centre. The improvements delivered will upgrade both walking and cycling routes in order to enhance the quality and ease of access to the growing number of shops, offices and municipal facilities focused around Nottingham's main rail station and the refurbished Broadmarsh shopping centre and bus station (scheduled for completion in 2020/21).

4.7 The station area/Nottingham Southside regeneration proposals have an intrinsic value of £2bn of Gross Value Added (GVA) and are consequently of great strategic importance. The new 'City Hub' College site (Figure 4-2) forms part of these and is currently being constructed to the north of Canal Street, immediately next to the NET tram line as it runs north from Nottingham Station. It is one of a number of new developments around the Broadmarsh and station area that will benefit from these enhanced links.

4.8 Improvements to the extent and quality of dedicated cycleways on the approaches to, and in the immediate vicinity of, Nottingham Station and Broadmarsh bus station will make it easier for people cycling into the city so as to interchange with onward transport connections. They will also join-up existing and proposed arterial cycle routes enabling cross-city cycle journeys to be made with minimal interaction between vehicular traffic and bus/tram service routes.

Figure 4-2: New Nottingham College City Hub (under construction now)



4.9 The **Low package** of investments represent LCWIP priority schemes and long-standing ambitions of cycling stakeholders. They have been designed to work alongside major traffic-flow changes in support of the regeneration of the south side of the City Centre:

- They are designed to improve access to the rail station, as well as making a positive contribution to the safety, speed and directness of through-city cycle trips.

These will connect some of Nottingham's busiest cycling streets. The TCF2-funded improvements will connect three of Nottingham's recently completed segregated cycle routes to the west, east and south of the city plugging a major gap in the cycle network and cross city routes (currently a traffic gyratory with limited cycle provision). They will also help to establish a dedicated north-south cycle link through the city centre – which does not currently exist at all and is a major barrier to cycling.

- The streets where cycling improvements will be delivered are also key locations for bus movements into the city centre. Greater segregation from both vehicle and pedestrian traffic will create safer riding environments that a wider range of people feel able to use, and which minimise conflicts between different road and public space user groups.
- The creation of dedicated cycleways will also help to preserve footpaths and public spaces around the station, and those being proposed around the redeveloped Broadmarsh shopping centre (see Aii) for pedestrians.
- This is particularly true along Queens Bridge Road and Fishergate, where the planned Unity Square (new HMRC premises) and Eastside (Figure 4-3) will benefit from new cycle lanes that enable people travelling by bike to avoid significant traffic flows along London Road/Lower Parliament Street and Sheriffs Way.
- Improvements to along and across London Road will expand development opportunities and link Nottingham's Island Site regeneration area to the City Centre and rail station.
- Signage improvements will help to improve the legibility of the area, facilitating easier discovery of Nottingham's city centre and visitor attractions (which include the contemporary art gallery and historic castle) which are otherwise an 800m/0.5 mile walk from the rail station and Broadmarsh bus station.
- Electric vehicle charging points delivered in the new Broadmarsh Centre car park, will help to ensure that those journeys into the city centre which need to be completed by car can be completed by people travelling in Ultra Low Emission Vehicles.

This infrastructure is central to tackling air quality issues in the centre of Nottingham and ensuring there are genuine alternatives to driving into the heart of the city to help Nottingham to become carbon neutral by 2028.

Figure 4-3: The Eastside (left) and Unity Square (right) regeneration projects



4.10 The **Medium investment package** adds further dedicated cycle route improvements around the Tollhouse Hill area of Nottingham, extending the station and Broadmarsh area-focused priority out towards the north of the city centre. A new contraflow cycle route along Toll House Hill will offer a direct route for cyclists travelling in and out of the city centre connecting to Nottingham Trent University City campus. It will integrate three arterial roads into the city which are well-used by cyclists and help to protect cyclists from highly trafficked sections of the road network, where conflicts with through-traffic and buses and taxis are commonly an issue. This section of highway emerged as being strategically important through Nottingham City Council's LCWIP engagement with local stakeholder, which has informed the prioritisation of urban cycling investments.

4.11 The **High investment package** seeks to build on the Low and Medium investment packages by revising traffic management arrangements and the public-realm outside Nottingham Castle, which is currently closed to facilitate a major renovation and delivery of a new state of the art visitor centre and due to reopen in 2021. The proposed alterations will further reduce traffic flows close to the entrance to the Castle and maximise the value of public space around the city's iconic Robin Hood statue and surrounding commercial and retail land that support the Castle. They will also improve walking and cycling connections between the Castle and redeveloped Broadmarsh shopping centre and bus station / mainline rail station area.

Aii - Nottingham city centre public realm

4.12 The Broadmarsh area works form a significant part of a £300m regeneration project which is expected to deliver 3,000 new jobs, 3 million new visitors per year and £1.1bn of economic growth (GVA) over a decade.

4.13 Theme Aii seeks to remodel public space around the Broadmarsh shopping centre and bus interchange/multi-storey car park/new central library, which (as noted under

Theme Ai) are currently undergoing refurbishment (shopping centre) and being rebuilt from the ground-up bus station/MSCP. Our public realm proposals will significantly improve on previous facilities by delivering a more inclusive and accessible street environment and attractive public spaces to link these facilities together.

4.14 Figure 4-4 indicates how the whole redesigned area will strengthen the interchange function of this area of Nottingham. It is a point of convergence for inter-urban bus services from the south of the city, long distance coach services and the city's main rail connection to Derby, Birmingham, Leicester, Liverpool London, Leeds, Manchester and Sheffield.

Figure 4-4: Nottingham's Broadmarsh area regeneration proposals



4.15 Theme Aii's **Low investment package** includes the pedestrianisation of Collin Street and Carrington Street, along with public realm improvements to the area surrounding Sussex Street. Over 12,000 square metres of people-focused public space will be delivered alongside the strategic cycling and traffic circulation improvements described in component Ai. The associated works will enhance pedestrian environments and public spaces along the main route between Nottingham railway station and the city centre; linking the new library, college campus, shopping centre, and Broadmarsh bus station/car park.

4.16 Removing east-west vehicle traffic, in tandem with improved dedicated cycle facilities (see component Ai), will ease cycle movements through the area. The revised road layouts and re-routed traffic management arrangements have already been funded by the D2N2 Local Enterprise Partnership, distributing Local Growth Funds, while Heritage Lottery funding has been used to renovate the buildings along a key bus and walking route into the city centre from the railway station.

Figure 4-5: Refurbished Carrington Street buildings returned to office use



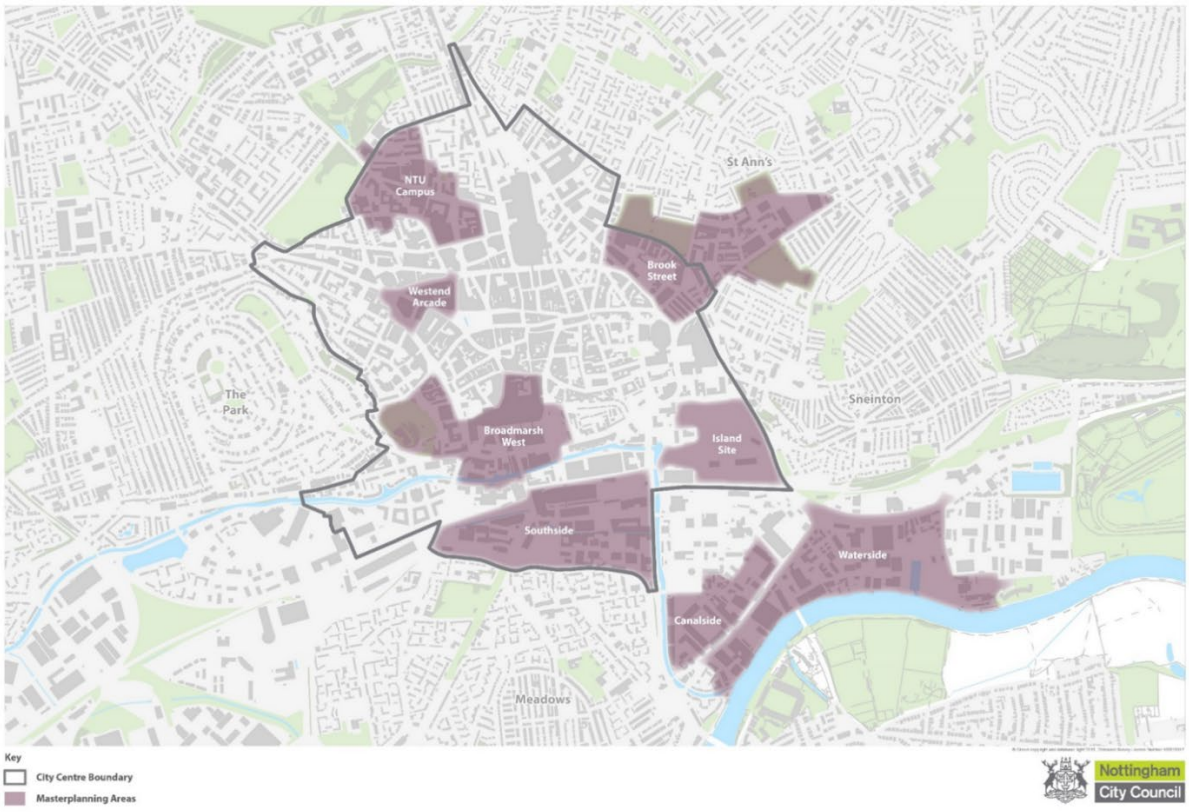
4.17 By complementing these existing highway and building-focused investments, Theme Aii will establish a combination of green spaces and hard landscaping to create capacity for events and performances, whilst helping to create a sense of place and activity. A safer, well-lit space for people to enjoy will encourage greater use of the Broadmarsh area for shopping, work, and leisure, help to re-establish a high-quality gateway from the railway station to the city centre and create an environment that is significantly less car-dominated and much more conducive to walking and cycling to encourage modal shift.

4.18 As noted in relation to component Ai, the TCF2 investment will increase economic activity and jobs in the surrounding area - stimulating development opportunities in the Broadmarsh area and around Nottingham Station.

4.19 Our **Medium and High investment packages** will extend the revitalised public realm improvements along a 300m stretch of Castle Road. This will establish a higher quality walking route between the rail station/Broadmarsh area, Castle Boulevard and the refurbished Nottingham Castle visitor attraction (the sixth most visited paid-for East Midlands attraction in 2015/16) which aims to be the most visited UK attraction outside of London upon re-opening.

4.20 Figure 4-6 depicts Nottingham city centre's allocated growth areas. Of these the Broadmarsh West, Southside, and The Island sites are set to become significantly better connected to the city centre, each other, and the rail/bus station interchange area (shown previously in Figure 4-1) as a result of our TCF proposals.

Figure 4-6: Nottingham city centre growth areas



Aiii - Derby city centre interchange hubs

4.21 This component focuses on improving walking and cycling connectivity between Derby city centre and the main rail station, via Riverlights bus station, by delivering new high-quality pedestrian and cycle routes between these locations. A dedicated bus route along the Morledge and Siddals Road will reduce bus journey times between the city centre and the city's mainline rail station, whilst delivering priority access upgrades into the bus station to reduce operational delays at this busy location.

4.22 Our **Low package of investment** seeks to deliver high-priority improvements that will strengthen connectivity between Derby rail station and the city centre. This includes a dedicated 1.3km walking, cycling and bus-only route along Siddals Road – immediately to the north of the Castleward development area – and extending along Morledge and Corporation Street. The route will include priority for buses along 160m close to the Cock Pitt/Station Approach junction, which is one of three that will be improved through traffic signal upgrades that reduce bus journey delays when entering/exiting the Riverlights bus station.

4.23 These improvements will complement wider city centre public realm proposals in Derby that dovetail with our Future High Street Fund initiatives. Specifically, this includes the removal of private vehicles (except essential access) along Corporation Street and the Morledge. This change will formalise temporary restrictions we have already implemented (to facilitate the installation of new flood defences), which have led to a reduction of around 25% of southbound traffic in the weekday AM peak period and a 30% decrease in the PM peak. These changes are expected to provide long-lasting positive impacts on congestion levels and reduce bus journey time variability for services calling along Corporation Street/ The Morledge and at the main bus station.

4.24 These physical changes to roadspace will be complemented by Real Time Information upgrades at the Riverlights bus station and in the surrounding public realm through new touch-screen information kiosks.

4.25 The **Medium and High investment packages** for component Aiii of our bid can scale with the level of funding available, as outlined in Table 4-1. DfT's investment in these higher value options will enable us to incrementally extend traffic signal priority, deliver interactive RTI kiosks across a wider range of city centre locations, and extend dedicated bus and cycle lanes further into the city centre. The High investment package will enable us to deliver a wider, two-way segregated cycle lane along Siddals Road. Figure 4-7 shows the location of improvements between Derby rail station and Corporation Street, while Figure 4-8 and Figure 4-9 illustrate the proposed concept

designs for improvements outside of the rail station, which include the new cycleway into the city.

Figure 4-7: Proposed extent of Derby rail station – city centre improvements

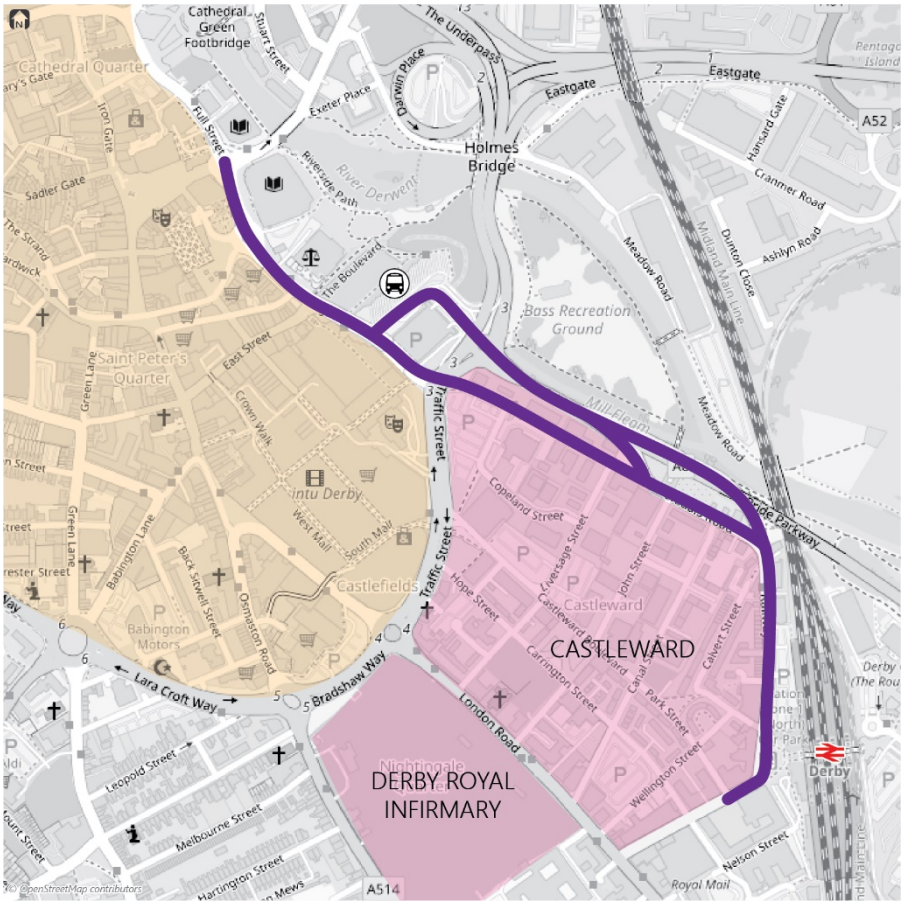


Figure 4-8: Derby rail station proposals – current (left) and future (right)

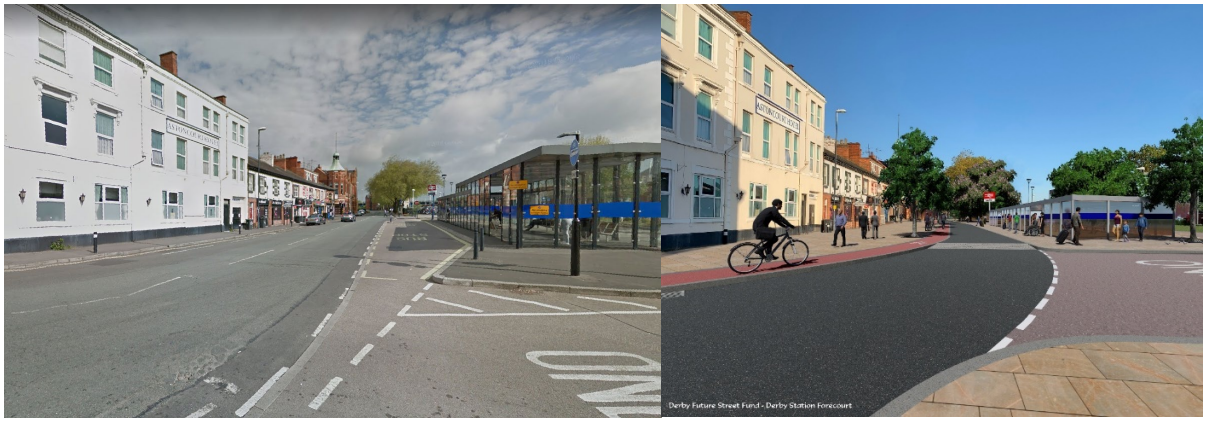
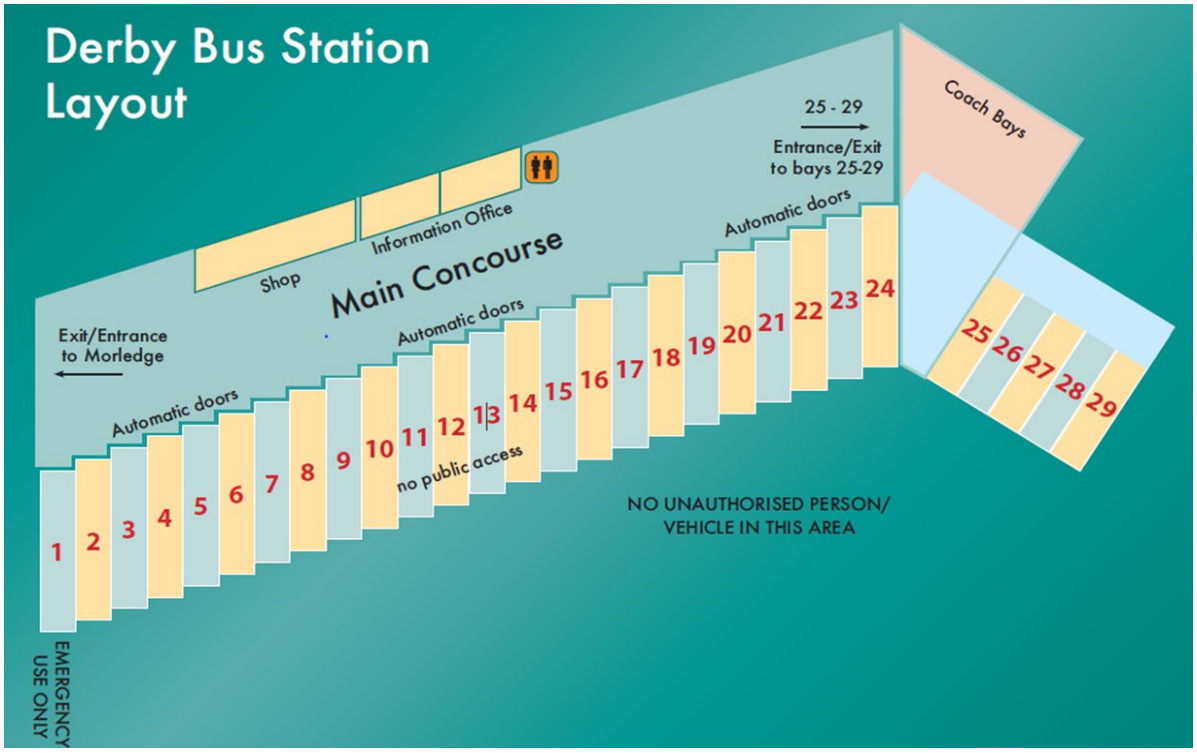


Figure 4-9: Derby Rail and Bus station link cycling + public realm proposals



4.26 The Medium and High investment proposals will also enable us to more comprehensively revise the layout of the Riverlights bus station, which is important given little scope exists to develop alternatives elsewhere in the city centre. In order to extend or alter the current bus station lay-out, it is vital that the operation of the existing various entrances and exits is reviewed to allow for a smoother operation of the bus station and surrounding road network. Our proposed investments will reduce regularly experienced delays that are compounded by the current layout of the bus station Figure 4-10) and surrounding road network, by altering access junctions and the internal apron of the bus station so as to increase the range of possible movements to bays 25-29.

Figure 4-10: Current layout of Derby Bus Station



4.27 Future growth in housing in and around Derby, and potential new bus links to the proposed HS2 rail station at Toton, are expected to increase demand for bus services to the City Centre – underlining the importance of these changes.

Aiv - Derby city centre public realm

4.28 As in Nottingham, Derby's city centre is undergoing a phased transformation that is being driven primarily by structural changes to the high street retail environment and changing demand for office and private rented/residential property in central areas of the city. These changes are reflected in Derby's City Centre Masterplan 2030, of which some elements have been brought forward through a combination of Local Growth Funding, with the prospect of further support from the Future High Streets Fund (into which Derby City Council is also bidding) which all combined to form part of a £2bn city centre regeneration programme.

4.29 To support this transformation, there is a need to replace and upgrade some elements of the existing public realm that are now approaching 30-years old. Despite being well-maintained, the pedestrian environment feels tired in places with some work to redevelop it already having been completed by the City Council (see Figure 4-11).

Figure 4-11: Derby city centre public realm – old (orange) meets new (grey)



4.30 Our **TCF2 Low investment package** establishes a core set of improvements to public realm in Derby city centre, extending those already delivered along St Peter's Street at the western entrance to the intu Derby shopping centre (completed in 2014) towards an important local bus interchange at 'The Spot' on the corner of Babington Lane and St Peter's Street. This area will receive:

- An extension to the walking and cycling improvements already delivered in St Peter's Street, with the addition of dedicated cycle lanes.
- Improvements for buses on the southern gateway into and out of the city centre, with two new bus priority junctions at The Spot.
- A dedicated bus/cycle/taxi lane that restricts access to these travel options from the south east of the city's inner ring road.

4.31 These improvements are already at the concept design stage, as shown in Figure 4-12.

Figure 4-12: Public realm proposals for The Spot in Derby



4.32 The **Medium investment package** extends both the public realm treatment and planned cycleway southwards along the Osmaston Road/London Road sections between The Spot and Derby's inner ring road. Improvements to the bus stops and waiting facilities in this location will improve passenger experience, while onward walking and cycling links will connect to the city's Castleward Urban Village which lies between The Spot and Derby rail station.

4.33 The Medium package will also establish a new Becketwell Public Square, which is an integral feature for 300 new homes which have been consented nearby through the statutory planning process. Enabling people to travel to the development and into the public square will determine and underpin the success of not only the development as a place to live, but also the city centre as a whole.

4.34 The **High package** further expands public realm, city centre cycleway and restricted (bus only) access. It will upgrade Victoria Street, which is already an established on-street transport hub adjacent to the planned Becketwell Public Square that requires significant modernisation to support our delivery against the Government Industrial Strategy's EV infrastructure and technology for smarter travel themes.

4.35 In addition, the High package will improve the quality of St Peter's Bridge, at the intersection of St Peters Street and Cornmarket (pedestrian priority areas) and Albert Street and Victoria Street (a local bus priority street). This is a key location in the city centre, as a high footfall site where pedestrians, cyclists and bus services converge. Upgrading this junction is central to striking an appropriate balance between the degree of priority afforded to these different user groups, improving the setting of the place, and establishing capacity for through mass transit services – tying in with our Theme Dii TCF2 proposals. Figure 4-13 indicates how we are proposing this area of Derby City Centre will change and link through to Corporation Street.

Figure 4-13: Derby City Centre public realm + cycle route improvements



4.36 These investments complement our Future High Street Fund interventions, which are seeking to rejuvenate parts of Derby's city centre that have lost their sense of identity and are lacking in activity. Currently a lot of Derby's economic activity exists out of the city centre; such as at The University of Derby, Rolls Royce, and Derby Royal Hospital; and the FHSF interventions are seeking to bring people back into the city and create a thriving environment for shoppers and commuters. It's been recognised that one of the challenges is having a disconnected city. As such, our proposed TCF2 investments – focused as they are upon human scale walking, cycling, public transport, and public realm improvements – will provide crucial infrastructure to make it easier for people to travel into the heart of the city and contribute to re-establishing the high street.

4.37 Taken together these schemes will deliver the final transformation phase for transport improvements linked to our delivery of the Derby City Centre Regeneration Masterplan 2030. Their realisation will:

- Increase the number of journeys made by low carbon transport modes, helping to address urban air quality issues focused on the city centre.
- Improve and extend mass transit/bus/cycle and walking infrastructure in the city centre, thereby tackling vehicle circulation and conflict.
- Improve access to work, retail and leisure.

Theme B: Strategic Derby – Nottingham – EMA links

4.38 The components which make up this theme are also scalable, and therefore combine to form Low, Medium and High investment options. All are deliverable in a phased manner, between 2019-23, with Low package elements in the highest states of readiness, which will directly connect to and expand out from existing high quality segregated cycle facilities within the Cities, while Medium and High components will require further scoping and development in 2019/20-2020/21 but are essential in ensuring the two cities are connected as well as the housing and employment sites between in Nottinghamshire and Derbyshire.

4.39 As shown in Figure 4-14 and Table 4-2, this Theme focuses on enhancing the range and quality of connectivity options between the main employment and growth locations of Derby, Nottingham and East Midlands Airport/Gateway. Consequently, there is a strong focus on public transport priority measures and route improvements; reflecting the travel distances involved. Figure 4-12 also illustrates how cycle schemes focused on the edges of Derby and Nottingham's urban areas will connect to form a longer-distance cycle expressway between the three locations.

Figure 4-14: Theme B proposals to enhance links between Derby, Nottingham and EMA

KEY

- Nottingham/Derby Area
- Local Authority boundaries
- Growth areas
- Road network
- Rail network
- Tram route
- Cycle route

Proposed improvements

- Strategic cycle route improvements
- Priority bus corridor
- Public Bike Share area
- Electric vehicle charging area
- Contactless ticketing integration and real time information integration

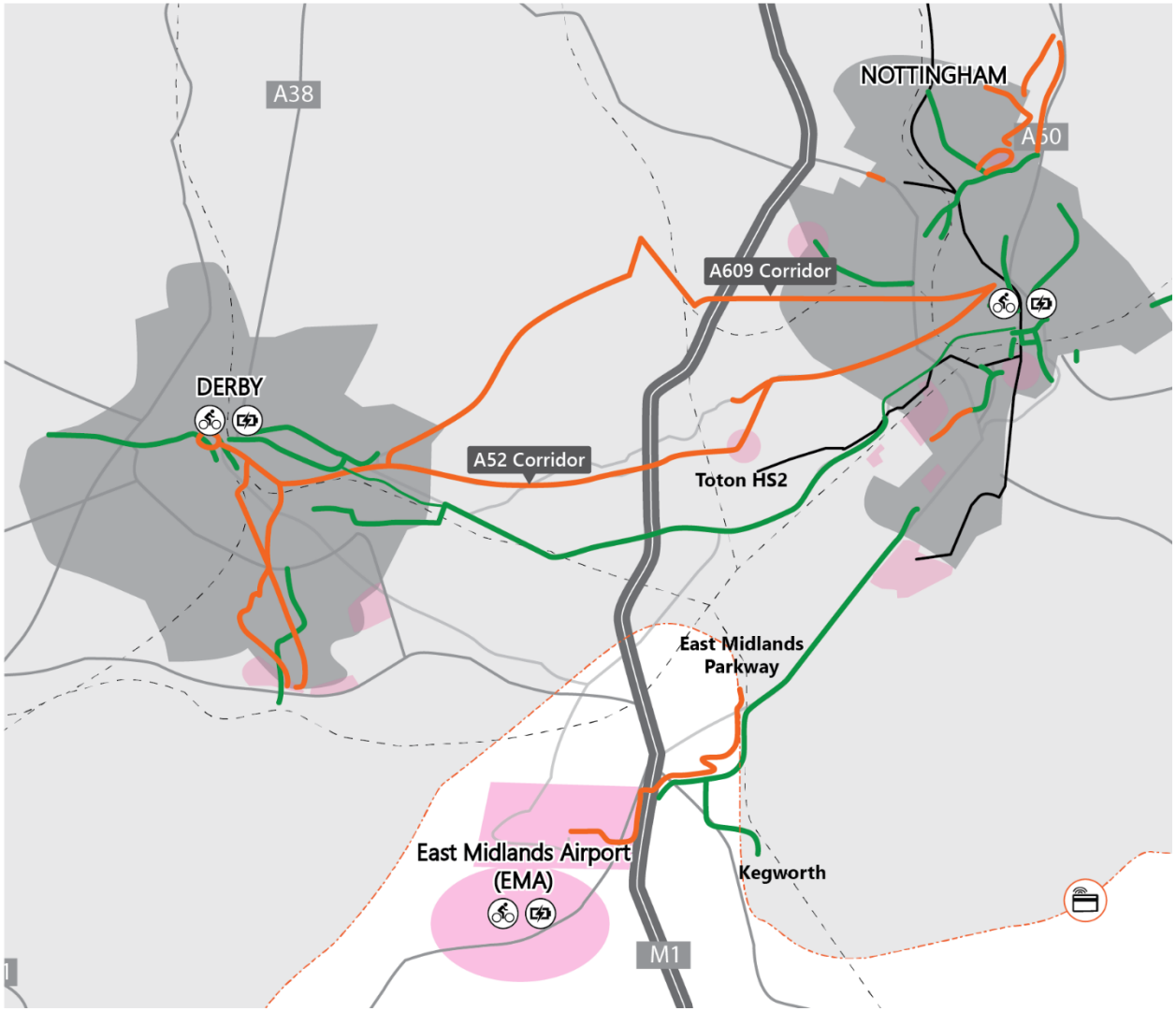


Table 4-2: Low/Med/High breakdown of Theme B scheme components

Component		Description	Low package		Medium package		High package	
			£m	Deliverables	£m	Deliverables	£m	Deliverables
i	Derby – EMA - Nottm cycle express-ways	Establish a continuous cycle route between Nottingham and Derby and EMA to link key destinations and population centres between the two cities for everyday cycle journeys	8.8	• 4.7km A6005 corridor cycle expressway Beeston – Chilwell • 3.57km Derby Riverside Path extension to Borrowash (A6005 route, 4.0m wide) • 12km route from Clifton (Nottingham) to EMA • 4.27km Derby Canal Path extended to Swarkestone (EMA route, 4.0m wide)	10.7	• Low package • 2km Chilwell – Long Eaton extension (Nottm – Derby route) • Street light Derby Riverside / Canal Paths • 3km Sutton Bonington extension (Nottm - EMA) route	11.2	• Low + Med package • Long Eaton – Borrowash 5.7km extension (Nottm – Derby route) • Derby Riverside and Canal Paths delivered at 5.0m width
ii	Cycle hubs and public bike hire system	Scope, procure and deliver a commercially sustainable Derby & Nottingham urban public bike/e-bike hire service	0.5	• 10 Cycle Hubs including secure bike parking / e-bike charging sites delivered along cycle expressways defined in Bi	3.7	• 20 Cycle Hubs • ~30 public bike hire sites with 625 bikes/e-bikes focused on transport nodes and growth sites	6.9	• 30 Cycle Hubs • ~60 public bike hire locations and a fleet of 1,250 bikes/e-bikes

Component		Description	Low package		Medium package		High package	
			£m	Deliverables	£m	Deliverables	£m	Deliverables
iii	Inter-urban bus priority and network upgrades	Extended Derby <-> Nottingham bus priority and expansion / upgrade of RTI and smart fare payment systems, adding easier and quicker payment options for travel across more of the network	5.6	• Targeted bus lane/signal priority between Derby & Nottingham (A52, A6, A453, A609 routes) • New CMS for real-time disruption information and message distribution • Robin Hood top-up/card dispense at tram ticket vending machines • Extend EMV contactless payment on-bus and at-stop across Derby & Nottingham	7.1	• Low Package • Extended bus priority measures • New Robin Hood fare products and online top-up • HOPS system upgrade • Extended Robin Hood top-up roll-out at tram stops • Extended EMV contactless payment	9.2	• Low + Med package • Further extended bus priority along Derby – Nottm routes
iv	EMA / East Mids Gateway transport access	Better PT links from urban fringes to key employment sites, filling gaps where shift travel needs off-peak bus connections	0.3	• Back office Demand Responsive Transport brokerage system to connect idle bus and community transport fleets with travel demand outside of conventional operating hours	0.5	• Low package	1.0	• Low + Med package • Improvements to local bus stops to align with extended DRT services
v	EV rapid car charge point network	Expand the public EV and rapid charge point network to key P&R sites, employment areas, and community facilities	1.1	• 60 electric vehicle charge points delivered at 14 locations, as costed (but undelivered) through the Go Ultra Low programme, with 50% at public transport interchanges	2.1	• Low package • Additional 30 electric vehicle charge points delivered at 6 extra locations	3.1	• Low + Med package • Additional 30 electric vehicle charge points delivered at a further 6 locations

Bi: Derby – EMA – Nottingham cycle expressway

4.40 The three cycle expressway schemes will establish continuous, safe, high quality cycle routes that link existing, new and planned residential and employment sites on the urban fringes of Nottingham and Derby to each other, and into existing cycle networks in each city. The focus is along the same strategic corridors that link Derby, Nottingham and the East Midlands Airport growth area, which are also being targeted with bus priority measures under component Biii, as follows:

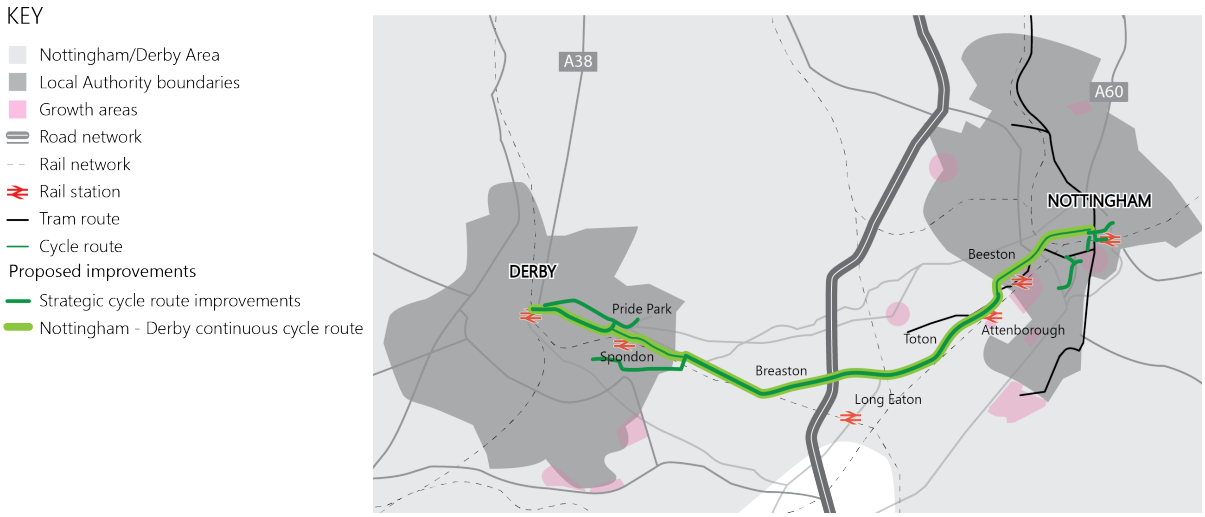
- **West of Nottingham to East of Derby**: the urban elements of this route sit within the Low package, and focus investment along the A6005 to extend existing traffic-free and protected cycle links from Beeston to Chilwell (West of Nottingham) and from Derby City Centre to Borrowash (East of Derby, via the Riverside Path). These routes will help to extend commutable distances by bike from both Derby and Nottingham's employment growth sites to housing growth locations near the M1 and proposed Toton HS2 station, as well as existing rail stations at Beeston, Attenborough, Long Eaton and Spondon. The Medium and High packages further extend this along a quiet route of semi-rural roads between Borrowash and Chilwell, via Draycott and Long Eaton, to establish a continuous link that will facilitate 'through' journeys by bike and e-bike between the two cities (Figure 4-16). The Medium and High packages of investment would also enable Derby City Council officers to widen and street-light the Derby Riverside path to enable year-round use for every day walking and cycling trips by a wider range of people (see Figure 4-15).

Figure 4-15: Current (left) and proposed (right) width and quality of Derby Canal and Riverside Paths, once upgraded





Figure 4-16: Outline route for the Derby – Nottingham cycle expressway



- **East of Derby towards EMA (via Infinity Park):** Extending and widening the tarmac surface of the Derby Canal Path to Swarkestone and in the other direction towards Derby City Centre (to 4.0m) forms part of the Low investment package for this route. The Medium package of investment funds street lighting along the route and adds surface treatments to segregate the cycle route from pedestrian footpaths. The High package of investment would enable the path to be widened to 5.0 metres to maximise the quality of the facility and minimise scope for pedestrian/cycle conflicts. This route links Sinfin Moor Lane and Infinity Park Way, which has Local Plan allocations for a mix of industrial/technology employment land and residential development. The proposed Infinity Garden Village Development (delivering 1,850 homes) will also be linked to the route, which can provide a direct, traffic-free leisure and commuter cycling link to Derby City Centre and established employment locations. There are few road crossings on this route, and those which do exist already have signal-controlled Toucan crossings, enhancing the safety and cost-effectiveness of upgrading the route.
- **South-west of Nottingham, towards East Midlands Airport:** the bulk of the spending on this route is included in the Low package, which establishes a continuous, sign-posted 12km quiet route from the Fairham growth area to the south-west of Clifton in Nottingham through to East Midlands airport and the neighbouring Gateway employment area. This will extend already-delivered cycle route improvements (implemented as part of the NET Tram extension to Clifton) that established a high-quality cycle route between Clifton and Nottingham(both of which have Nottingham Trent University campuses), and will fill missing links along the old A453 (which, now de-trunked, serves as a quiet route suitable for cycling). This will increase scope for longer-distance cycle trips for people living to

the south-west of Nottingham and working at the airport / in Nottingham city centre. The route will also connect to East Midlands Parkway station, where cycle parking and e-bike charging will be provided. The Medium investment package includes an additional scheme to establish a 3km cycle link to the University of Nottingham's Sutton Bonnington campus, which has a large number of students living in Kegworth – and for which the Parish Council has been working with Leicestershire County Council to develop an Active Travel Plan.

4.41 These improvements are intended to complement the area-wide public bike hire scheme, and extend high quality cycling connections out beyond the Derby and Nottingham urban areas – which have been the focus of previous funding.

Bii – Cycle hubs and public bike hire system

4.42 Once completed, the longer-distance cycle route improvements described in Bi will be marketed as cycle expressways, with e-bike charging facilities and enhanced cycle parking facilities provided at key 'Cycle Hub' locations along the routes (funded through our Low TCF investment package). We intend, through the **Low investment package** to focus these facilities at new and existing Park & Ride sites (Clifton, Toton, Megaloughton Lane, Boulton Moor), rail stations (East Midlands Parkway, Spondon, Long Eaton, Derby, Nottingham), the East Midlands Gateway public transport interchange and East Midlands Airport. Under the Medium (20 Hubs) and High (30 hubs) investment packages we will be able to extend the Cycle Hubs to a wider range of locations across Derby and Nottingham. This will help to address stakeholder feedback from local cycling groups, which highlighted the need for more secure cycle parking facilities across the area's cycle network.

4.43 **The Medium and High investment packages** also include funding for the scoping and development of a Derby and Nottingham-wide public bike hire system, with the aim being to use e-bikes as the main hire option. This seeks to build upon the indications from Derby's e-bike hire service, which operated for around 12 months prior to unforeseen vandalism and unsupportable running costs meant it had to cease operations. Whilst operational, the service was incredibly successful with bikes experiencing a high level of utilisation and extending cycle trip distances by roughly double the national average. The TCF funding will be used to:

- Develop a scheme proposal that can be delivered jointly across the Derby and Nottingham area, through which market testing will be undertaken with potential operators prior to a procurement exercise.

- Work closely with DfT's Cycling and Walking Team to co-develop a commercially and operationally sustainable blueprint for a public bike hire system that can be adopted by other core cities and large towns, and delivered in collaboration with private sector partners.
- Work with a preferred bidder to identify optimal cycle hire locations and fleet size / composition, drawing on lessons learned from previous similar schemes in Derby and Nottingham. This will include establishing a commercial business plan that is sustainable and risk-aware – insulating the Councils and the proposed TCF investment from potential failure of the scheme.
- Fund the delivery of hire locations, including the physical infrastructure needed to operate the system and make bikes/e-bikes available to members of the public. Based on previous experience, values derived from other operating schemes, and discussions with operators, we anticipate establishing a fleet of 625 bikes/e-bikes across around 30 hire locations in the Medium investment package and 1,250 all-e-bikes across approximately 60 hire locations.

4.44 We anticipate the cycle hire scheme investment will augment the cycle expressway schemes (described in Bi) and help to foster wider use of cycling as an everyday mode of travel for trips around Derby and Nottingham.

Biii - Inter-urban bus priority and network upgrades

4.45 Complementing the strategic cycle network improvements proposed in Bi, this component will deliver a mix of physical and traffic signal priority improvements for bus services operating along similar movement corridors between Derby and Nottingham. It also significantly upgrades and future-proofs a number of network-wide back-office systems that are needed to deliver real time information, disruption messaging and handle contactless payments across the area's bus and tram services.

4.46 The bus lane and traffic light priority measures form a key element of the **Low investment package**, with traffic signal upgrades (allowing for real-time detection and phasing priority for buses), bus lane camera enforcement, and extended bus lanes being focused upon the main East-West arterial routes that link Derby, Nottingham and East Midlands Airport (London Road/A6 in Derby, A52, A453, and A609). These links tend to be reasonably free-flowing outside of the urban areas, so we envisage targeting improvements to:

- Deliver a 'queue-jump' effect for existing bus services, so as to reduce journey times and their variability, on arterial approaches into Derby and Nottingham. This

will primarily involve extending bus lanes along verges and through on-street parking removal.

- Connect into new/upgraded Park & Ride sites on the urban fringes of both Derby and Nottingham that offer rapid charging facilities for ULEVs – so as to encourage 'all electric' emission-free travel to key employment locations.
- Ensure key growth locations, including the HS2 Toton Station Hub, Boulton Moor, and East Midlands Gateway Rail Freight Interchange are effectively served by more reliable and rapid bus-based public transport links.

4.47 Additional funding for these measures in the **Medium and High packages** will extend priority measures and traffic signal upgrades along a greater extent of each bus route.

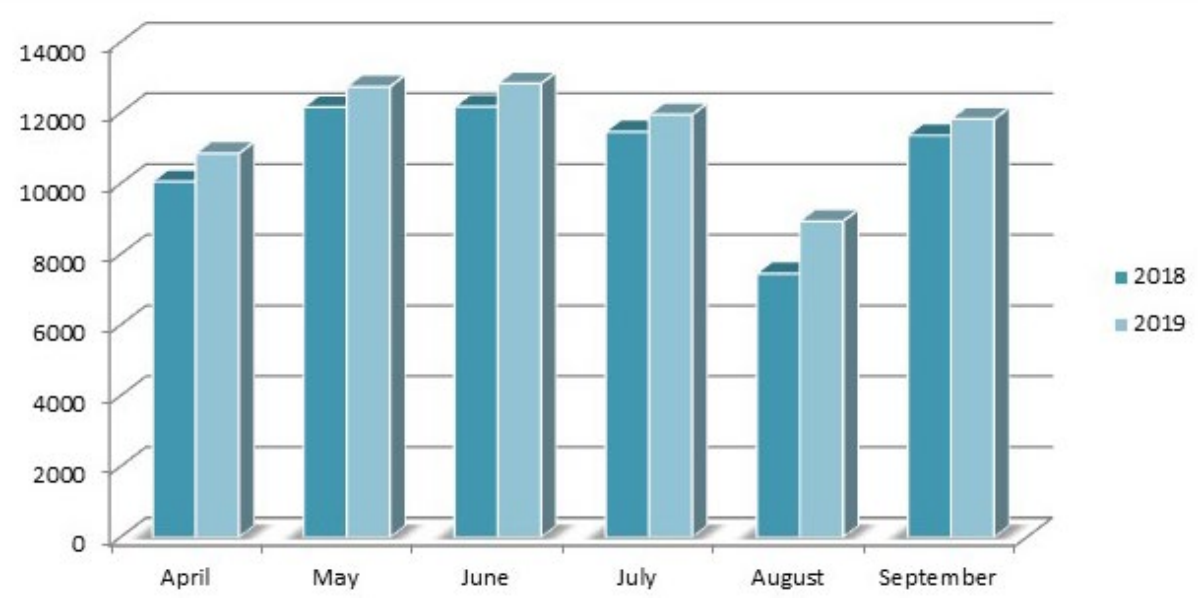
4.48 The **Low investment package** also includes considerable back-office investment in the existing Derby and Nottingham real time information and contactless payment systems – helping to extend them further across the two cities' joint travel-to-work area. The funding will be used to procure:

- Hardware for Nottingham's contactless EMV payment system, which will begin to come online from December 2019 onwards, with equivalent equipment being added to buses and stops in Derby to maximise interoperability.
- A single content management system to replace the current 'patchwork' system that powers local public transport real-time information. This will allow for more sophisticated disruption information and messaging to be delivered over an extended range of channels. Modernisation of the real-time system will improve information quality and make it available across both digital platforms and on-street hardware; dramatically improving passenger experience and the quality of the overall service offered by local transport operators.
- Additional ticket vending machine hardware and retail facilities that enables multi-operator 'Robin Hood' (Nottingham) and 'Spectrum' (Derby) fare products and smart cards to be sold at a greater number of NET tram stops and off-bus location (at bus stops/in-street vending machines). This will remove barriers to using bus and tram services experienced by some people; introducing simpler ways to pay for public transport trips and simplifying the confusing array of fare products and ticketing requirements that exist.

4.49 Under the **Medium TCF investment package**, new fare products (including for Students) and account-based online top-up facilities for the Robin Hood network in Nottingham, along with a wider Spectrum travel zone and fare capping systems for multiple operators within, and between, Derby and Nottingham. Wider

implementation of contactless EMV payment systems, through delivery of additional retail hardware on buses and at-stops, will also be possible with the additional funding. Figure 4-17 emphasises the growing local demand for multi-operator fare products.

Figure 4-17: The 7% increase in journeys using Spectrum fares in 2018-19



4.50 These interventions will directly support, and complement, proposals to develop a MAAS platform as part of Derby and Nottingham's Future Mobility Zone plans. Figure 4-18 and Figure 4-19 demonstrate the differences between the current content management system and the proposed improvements under this scheme.

Figure 4-18: Current RTI/traffic signal priority system architecture

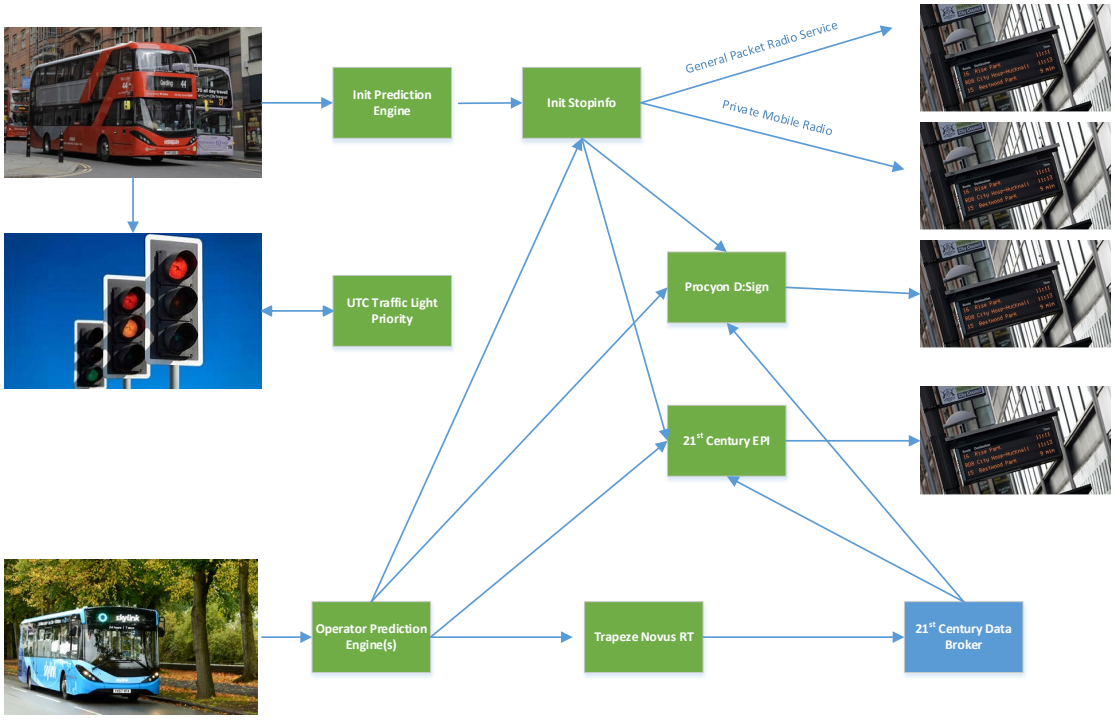
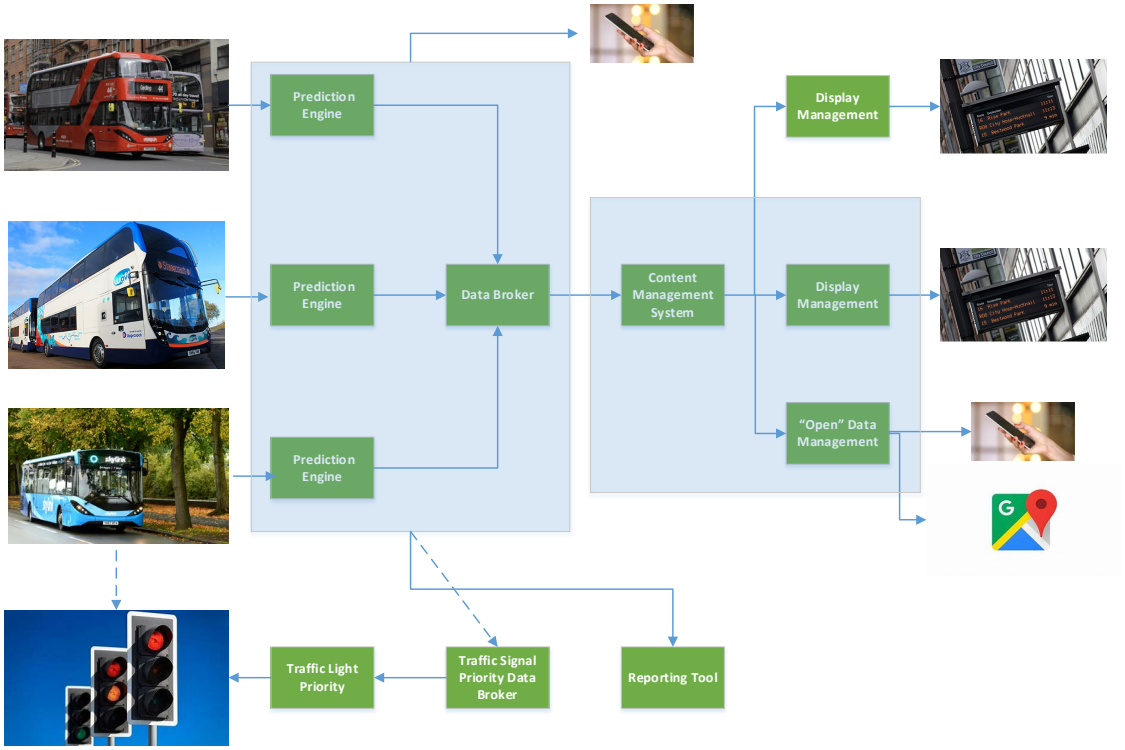


Figure 4-19: Proposed RTI/traffic signal priority system architecture



Biv - East Midlands Airport/Gateway/Parkway transport access

4.51 This component is largely funded under **the Low and Medium investment packages**. It will deliver a Demand Responsive Transport brokerage system, which is to be developed in partnership with East Midlands Airport, Nottinghamshire County Council, Leicestershire County Council, local public transport operators, and the East Midlands Gateway rail-freight interchange site operators. This seeks to maximise existing bus service provision by capitalising on current assets, including idle commercial bus fleets and local Community Transport services during late evening and early morning. The system will enable better bus connections to be provided from the urban fringes of Derby, Nottingham and North Leicestershire; helping to connect these key employment sites by filling gaps in scheduled bus services where shift patterns do not align to core public transport provision.

4.52 **The High package** will expand on this by delivering capital improvements to bus stop facilities at key locations which benefit from the demand responsive services 'out of hours', potentially including capital grants to workplaces and major employment sites to improve on-site facilities (such as walking routes to bus stops, and/or real time information totems). These capital investments will be match funded by Nottingham City Councils' workplace travel service, and Derby City Council's Connected travel advisors, who will engage with staff working at the Airport and the Gateway sites to ensure they aware of the full range of public transport, active travel and car-sharing options available to them for their commuting and business travel.

Bv - EV rapid car charge points network expansion

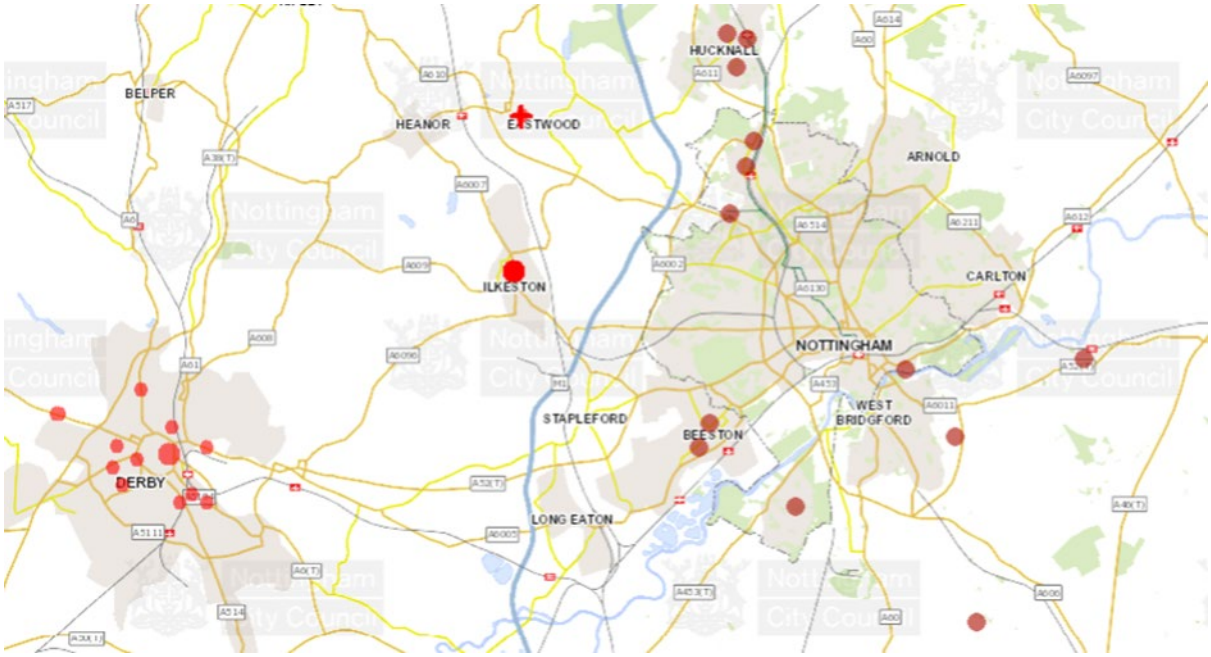
4.53 Building on the success of the D2N2 electric vehicle charging network, this component of Theme B will expand publicly-accessible EV charge point provision to a range of new/extended Park & Ride sites, employment locations, and community facilities.

4.54 Under the **Low investment package** 60 rapid and fast chargers will be added to the network at 14 locations which have already been scope and costed (but not delivered) through the Derby and Nottingham Go Ultra Low City programme. The **Medium investment package** will extend this to around 90 chargers in total, with the additional 30 delivered at ~6 extra locations across the area. The **High investment package** will deliver a total of 120 chargers, across a total of ~25 locations.

4.55 Figure 4-20 indicates the proposed locations for these additional EV charging points. There are particular areas where growth in EV ownership is significantly constrained; typically in existing residential areas where there is very limited or no off-street parking. The provision of new infrastructure and the management of the roadspace/streetscape

requires a 21st Century solution for streets that were originally designed in the 19th Century.

Figure 4-20: Proposed Nottingham area charge point Locations



4.56 The additional charging points align with the TCF objectives by deepening integration of travel modes and allowing first/last-mile journeys to be completed by public transport options in tandem with electric vehicles. In addition to the aim of driving up public transport connectivity, the scheme will reduce air pollution and carbon emissions. Further charge points in Derby provides more opportunity for people to travel across the city with their electric vehicles and encourage businesses to invest in electric fleet vehicles where suitable. The scheme will also ease concerns cited by those wishing to switch to electric vehicles around the availability of charging points, by increasing provision and boosting the number of rapid chargers across the area.

Theme C: Nottingham Urban Growth Corridors

4.57 Theme C focuses on improving sustainable transport connections along key 'growth corridors' within the Nottingham urban area.

4.58 In line with DfT's rebalancing toolkit, a significant portion of the investments proposed under this Theme are targeted upon locations to the north, north west, and east of the city. As shown in Figure 2-12, these are the locations in Nottingham with the highest levels of multiple deprivation, which offer considerable scope to improve travel horizons and access to opportunity for people who are not in education, employment or training (NEET).

4.59 Table 4-3 provides details of all the components proposed under Theme C, and breaks down the Low, Medium and High investment options for DfT's consideration in respect of our TCF2 bid. As with other Themes, all of the components are designed to be scalable depending on the level of funding available and the costs presented include DfT Capital, private and local contributions, and allowances for quantified risks and inflation.

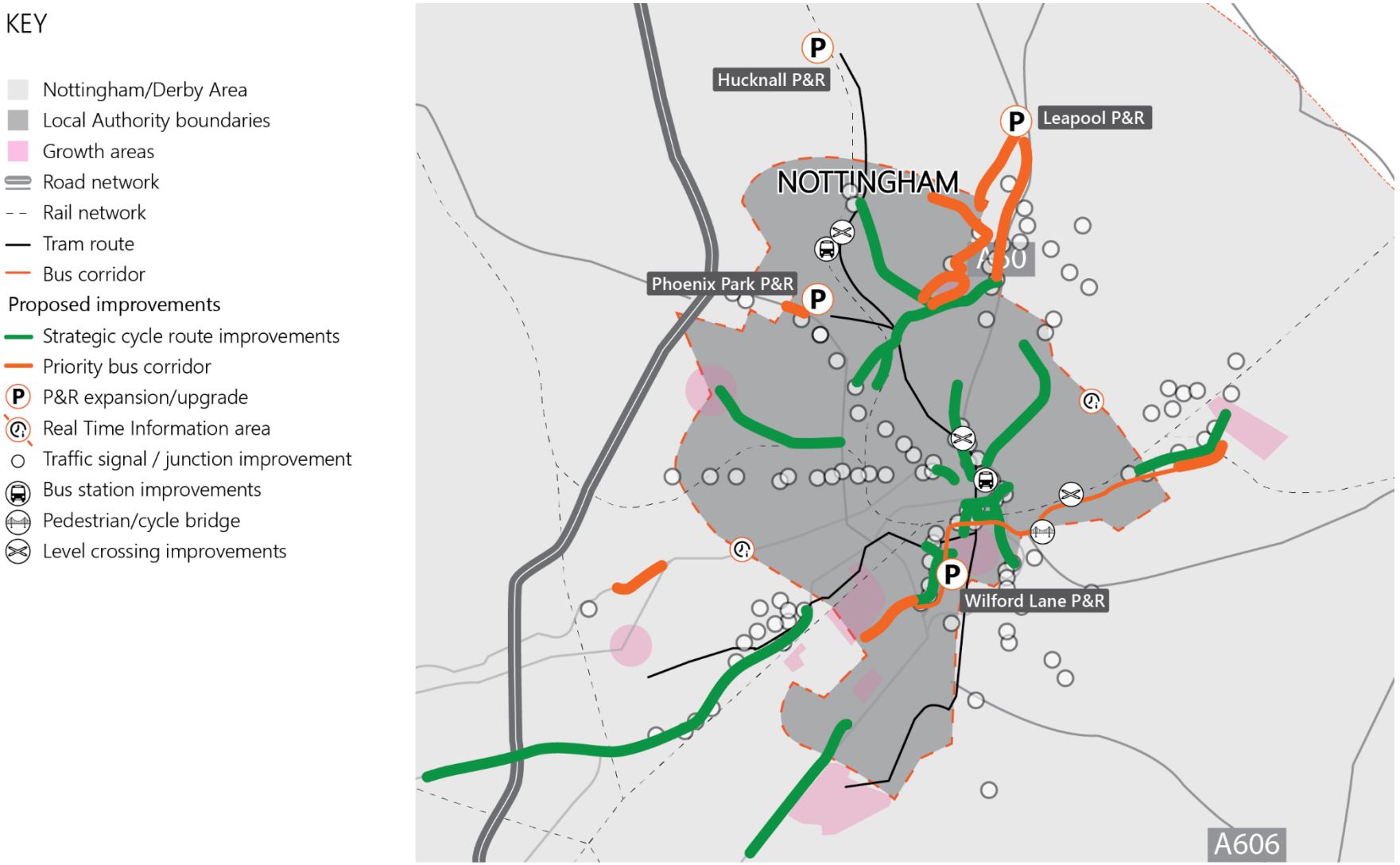
Table 4-3: Low/Med/High breakdown of Theme C scheme components

Component		Description	Low package		Medium package		High package	
			£m	Deliverables	£m	Deliverables	£m	Deliverables
i	Nottingham southern growth corridor extension	Key junction and traffic signal upgrades, plus delivery of a new inbound bus lane and upgraded cycle route, along a high frequency bus corridor to the Boots Enterprise Zone	4.3	• 0.85km Boots EZ Bus + ULEV Priority Lane + segregated cycle route • Associated Clifton Bridge junction improvement • 0.35km A612 Colwick bus and ULEV lane extension • Colwick level crossing camera/signal upgrade • 50 RTI displays	5.0	• Low package measures • Private Mobile Radio to SIM upgrade for local bus services	6.0	• Medium package measures • Additional 9 totem RTI displays
ii	Nottingham central and western bus priority corridors	Key junction and traffic signal upgrades focused on A60, A609 and A610 bus routes, with RTI extensions, bus station improvements and pinch point interventions	10.3	• A60/A609/A610 SCOOT traffic light priority installed at 53 junctions to improve 'green wave' priority for late-running bus services	11.4	• Low package measures • 'Switch on' traffic light priority at 64 existing SCOOT/MOVA junctions without this provision • 60 x 28" RTI TFT screens installed along improved bus routes • 6 x RTI totems in public spaces along these routes	13.3	• Medium package measures • Extra 6 RTI totems installed along improved routes • Victoria and Bulwell bus station improvements • B5010 Nottingham Rd – Bramcote inbound bus lane delivered on highway verge

Component		Description	Low package		Medium package		High package	
			£m	Deliverables	£m	Deliverables	£m	Deliverables
iii	Nottingham northern bus priority corridors	Key junction and traffic signal upgrades focused on A60, A609 and A610 bus routes, with RTI extensions, bus station improvements and pinch point interventions	3.2	• Hucknall Road, Bestwood (2x SCOOT) and Arnold Rd/Edwards Ln (1x MOVA) signal module • Bus lane cameras • City Hospital internal road upgrade to increase Medilink bus capacity • Carey Road/Stockhill/ David Ln level crossing signal + camera upgrade • Bestwood/Arnold bus lanes	3.6	• Low package measures • Extension of Bestwood and Arnold bus lanes over greater extent of proposed Leapool Park & Ride route	7.5	• Medium package measures • Further extension of Bestwood and Arnold bus lane packages • Re-designed junctions to reduce bus delays at A610 Nottingham – Cinderhill and on the A60 from Cross St to Sir John Robinson Way
iv	Nottingham Park & Ride upgrades	Significant upgrade to Nottingham's Park & Ride capacity - expanding 2x NET tram P&R sites that operate over capacity on weekdays and delivering two new sites	7.5	• Extend Hucknall NET P&R site by 110 spaces on an extended site footprint • Extend Phoenix Park P&R site by 340 spaces on a second car park deck • New 750 parking space bus-based P&R at Leapool A60/A614 junction, close to housing sites with 350 homes allocated	10.0	• Low package measures • Up to an extra 350 parking spaces at Hucknall P&R by adding a second parking deck	12.0	• Medium package measures • New 240 space NET tram-based P&R at Wilford Lane

Component		Description	Low package		Medium package		High package	
			£m	Deliverables	£m	Deliverables	£m	Deliverables
v	Nottingham LCWIP priority cycle corridors	Major investment in segregated cycle lanes and pedestrian priority outside of the City Centre to south/north/east and west of Nottingham	14.7	• Improved/new river Trent crossing close to Lady Bay and associated cycle network connections • 4.2km ring-road north cycle lane widening and crossing improvements • 0.4km Hucknall Rd Greenway, ring road – City Hospital link • 0.9km River Leen walk/cycle path street lighting (Wilkinson St – Church St stretch)	21.7	• Low package measures • 1.8km Queens Drive segregated cycle path with priority crossings and junction upgrades • 3.1km upgrade of poor quality on-road lanes to more segregated route along Wigman Rd / Beechdale Rd north west of city centre + improved pedestrian environment • 3.5km upgrade of fragmented cycle lanes to segregated route along St Anns Wells Rd north-east of city centre	24.4	• Medium package measures • 1.0km Mansfield Rd, south of Hucknall Rd, upgrade of on-road unsegregated cycle paths to an off-road segregated route • 3.0km Hucknall Rd Greenway, new off-road segregated cycle route along disused rail line • 2.5km A612 Colwick Loop Rd new segregated cycle lane to east of Nottingham / Victoria Park growth area (phase 1)
vi	Sustainable Workplace Travel Capital Grants – Nottingham	Small, match-funded capital grants to enable businesses to upgrade facilities.	0.7	• Workplace Travel Capital Grant to 24 local businesses	1.0	• Low package measures • Grants additionally distributed to another 8 local businesses	1.3	• Medium package measures • Grants additionally distributed to an extra 8 local businesses

Figure 4-21: Theme C proposals for Nottingham's Urban Growth Corridors



Ci - Nottingham Southern Growth Corridor extension

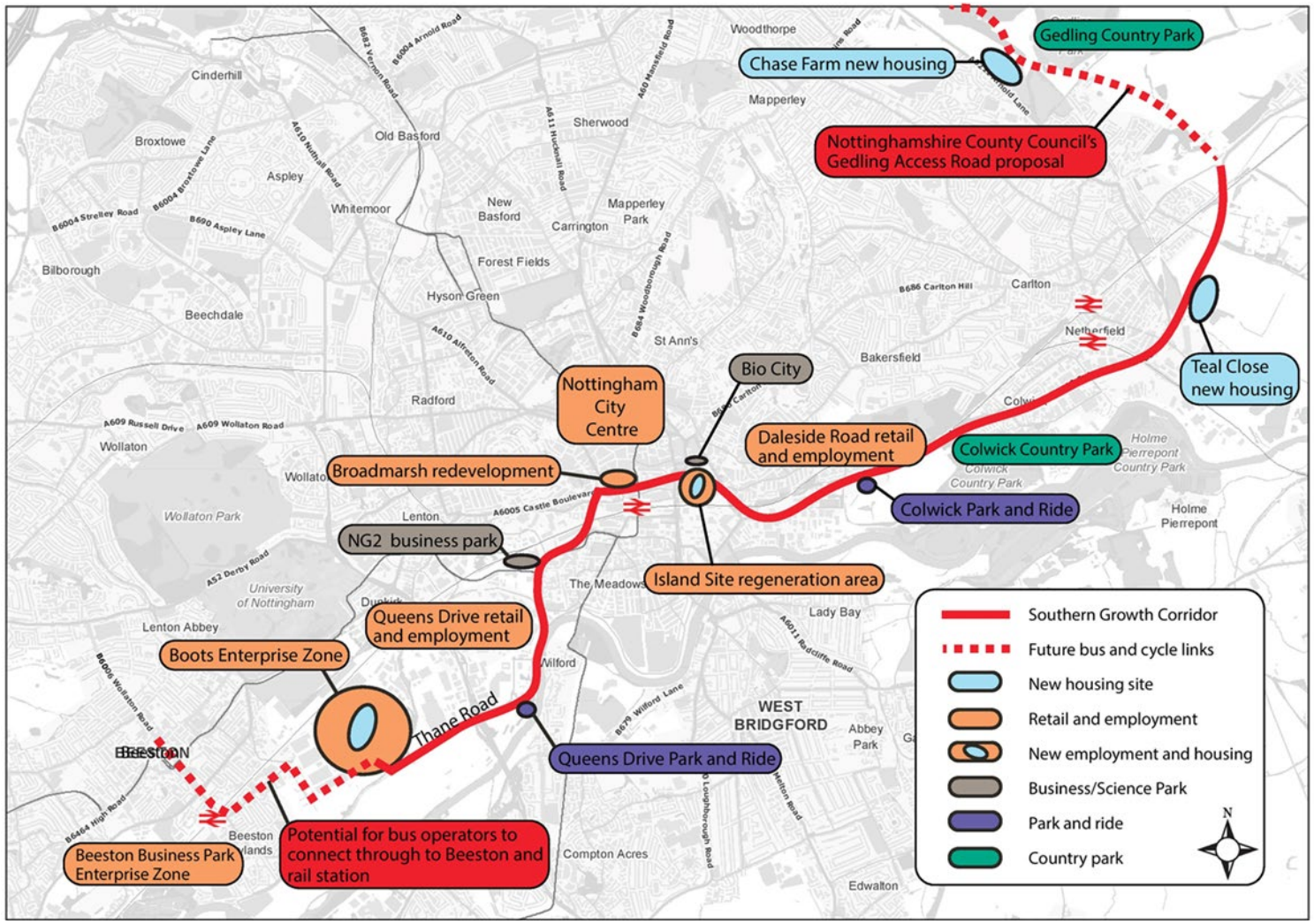
4.60 Theme Ci will extend Nottingham's Southern Growth Corridor. Originally delivered using Local Growth Fund investment from the D2N2 LEP, the resulting 'Eco-Expressway' has successfully improved public transport and cycling connectivity between the Daleside Road employment zone and 'Southside' growth area adjacent to Nottingham rail station. As well as re-routing cross-city vehicle traffic to facilitate the Broadmarsh redevelopment that is a focus of Theme A's component ii, the Expressway is activating the Eastside area of the city, within which sits a previously derelict 40-acre 'Boots Island' mixed-use development site. This site; which comprises new homes, grade A office space, creative market space, a five-star hotel, retail units, a 'linear' park, community space and student accommodation as well as integrating with the existing walking and cycling network; received outline planning consent from Nottingham City Council earlier this year.

4.61 The **Low investment package** will enable the physical infrastructure works needed to extend the existing 'Eco Expressway' further to the east and west of central Nottingham, supporting key employment and residential developments at:

- Boots Enterprise Zone, from which 850m of continuous bus and cycle lane extensions, and remodelling of the Clifton Bridge junction approach with the A52/A453, will strengthen the operation of the existing Queens Drive Park & Ride and improve the reliability and frequency of bus services to new homes and jobs currently being delivered between Beeston and Nottingham. This project will also support the future introduction of new cross city bus route from Colwick in the East to Beeston in the West.
- The Colwick and Netherfield employment and housing growth areas west of the city centre, reducing journey times and improving reliability for public transport passengers by affording a significant 350m queue-jump along the congested A612 corridor into the city at peak times.

4.62 Allowing ULEV's access into these lanes at peak times will further accelerate uptake and utilisation of electric vehicles, aiding local air quality along arterial roads into the city and smoothing overall traffic flow. Physical improvements along the A612 will be complemented by traffic signal improvements and enforcement cameras at the Colwick railway level crossing, which is a key source of local traffic and bus service delay. Real Time Information displays at stops along the corridor will be upgraded to TFT screens; improving the range and accessibility of information available for passengers.

Figure 4-22: Nottingham Southern Growth Corridor Plan



4.63 The **Medium and High investment packages** build upon the Low package by, respectively, delivering an extra nine RTI totem displays and replacing the current Private Mobile Radio system coverage with more reliable 4G SIM comms to ensure realtime data flows from local bus services to the realtime sign estate remain uninterrupted. This will also enable the network control room to deliver more sophisticated, and nuanced, real time disruption and delay information to the upgraded colour TfT displays at bus stops across the area.

Cii - Nottingham central and western bus priority corridors

4.64 Improvements to the southern growth corridor are complemented by a suite of public transport priority improvements to Nottingham's central-western bus corridors, into which the Boots–Colwick Eco Expressway connects.

4.65 Focused on locations with higher than average levels of unemployment and lower academic attainment, the **Low package of investments** will primarily deliver improvements through the Switch on of Auto Vehicle Location – Traffic Light Priority for buses at 53 junctions and installation of SCOOT traffic signal controllers and Traffic Signal Priority provision along the A60/A609/A610 bus corridors. These will help to improve bus service journey time reliability during peak periods, by providing junction priority for late running buses and optimising traffic flows through sets of linked junctions in response to the changing 'tidal' nature of weekday morning and evening peak periods. It will help to reduce bus service journey times for passengers, and operators' peak vehicle requirements to maintain current headways.

4.66 The **Medium package** extends this by effectively 'turning on' the Traffic Signal Priority option at 64 existing SCOOT/MOVA enabled signals, which is linked to the Automated Vehicle Location (AVL) systems fitted to buses. This will enable late-running buses to request priority through intersections, with the extended 'green waves' expected to benefit all traffic – but particularly bus passengers and operators. In addition, 60 TFT Real Time Information screens will be installed, accompanied by six freestanding 'totems' in public spaces, along the extent of these routes. The extent of these improvements can be scaled in-line with the availability of funding from DfT.

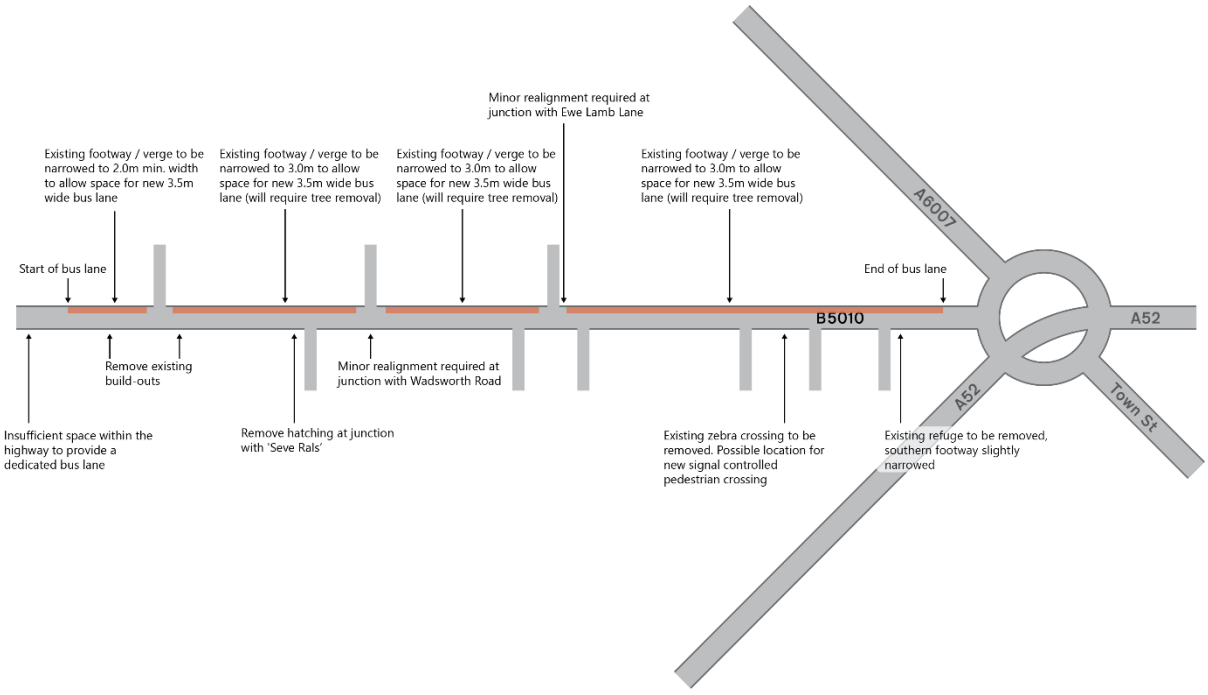
4.67 The **High package** adds further freestanding totems (another six), taking the total to 12; spread across the following locations:

- 1 x Sherwood (M,H)
- 1 x Bulwell Bus Station / District Centre (M,H)
- 1 x Ilkeston Road (Lidl) (L,M,H)

- 1 x Basford Hall College (M,H)
- 2 x Broadmarsh Area (L,M,H)
- 1 x New College (L,M,H)
- 1 x City Hospital (L,M,H)
- 1 x NTU City Campus (M,H)

4.68 These complement the improvements to passenger waiting facilities proposed for both the Victoria and Bulwell bus stations. They also align with the B5010 Bramcote inbound bus lane, which seeks to address a known pinch point on the city's bus network that has been identified through liaison with local bus operators (see Figure 4-23).

Figure 4-23: Potential B5010 inbound bus capacity improvements



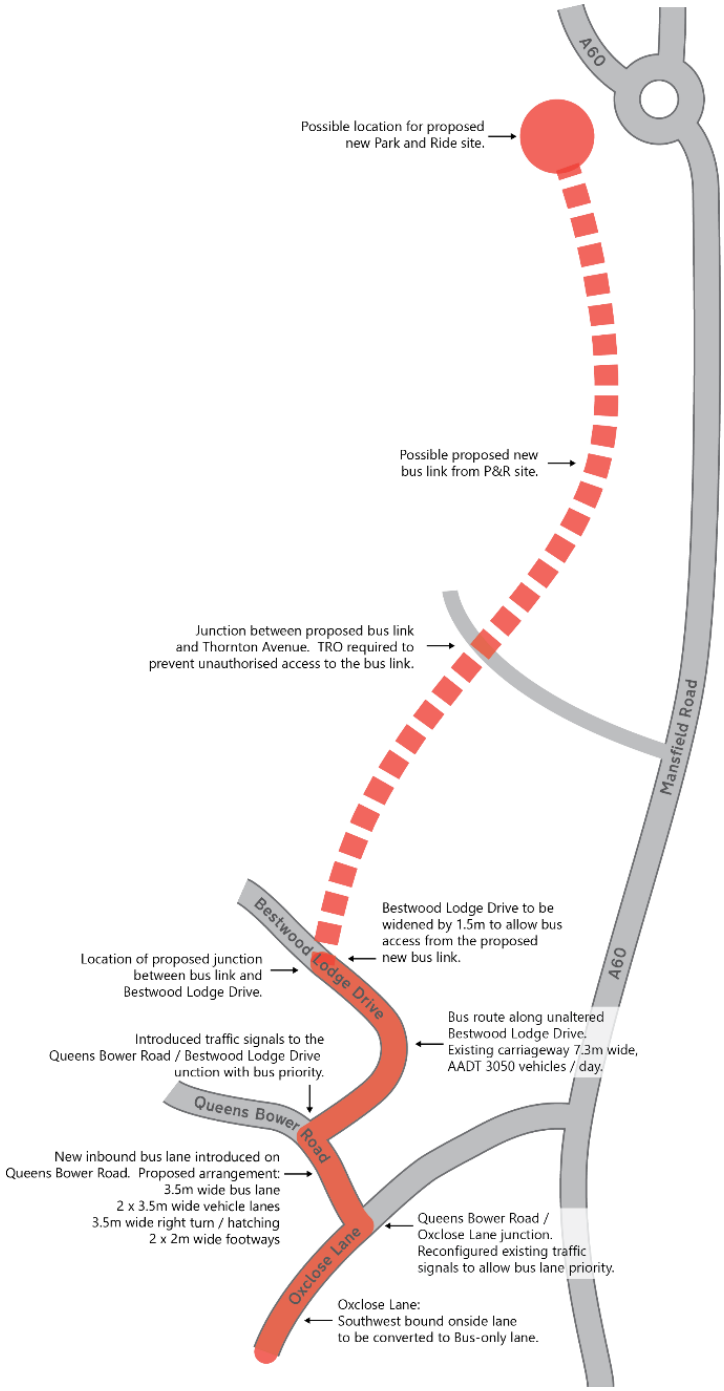
Ciii - Nottingham northern bus priority corridors

4.69 This component of the Theme C proposals comprises a series of significant junction and bus lane upgrades along Nottingham's northern bus corridors.

4.70 The **Low investment package** focuses upon a combination of three SCOOT/MOVA traffic signal priority improvements, bus lane enforcement cameras (to prevent obstructions caused by waiting, illegal parking, and loading), and around 1km of physical bus lane extensions on key routes through the Bestwood and Arnold areas of the city. The routes have been selected in partnership with Nottinghamshire County Council, so as to ensure that a high degree of priority is allocated along the route of

the planned Leapool Park & Ride service (see component Ciii for details and Figure 4-24 for route plans), and between the two district centres. Early feasibility work has already been carried out for this route, with designs in the process of being developed as part of the County Council's work to support the Gedling Local Plan – in which the Park & Ride and North Nottingham busway form a dedicated transport policy.

Figure 4-24: Leapool Park & Ride bus link proposals



4.71 As in Theme Cii, these bus route improvements will be accompanied by new level crossing signal and enforcement camera upgrades designed to prevent delays to bus services caused by vehicles obstructing these intersections. The Low package also includes provision for upgrading the entrance and internal 'Campus' road at Nottingham City Hospital. This will enable the popular Medilink Park and Ride Service (which acts as a shuttle between Queens Medical Centre and City Hospital, and the Wilkinson Street and Queens Drive Park & Ride sites) to operate with higher-capacity, long range BYD K9 buses – thereby significantly increasing the capacity on this route.

4.72 Both the **Medium and High investment packages** will use DfT funding to extend the Bestwood and Arnold bus lanes along a greater extent of the northern bus corridor, including along the A60 towards Mansfield and Worksop, and the A610 towards Kimberley, for which similar early scoping work has already been undertaken.

4.73 Match funding for Theme Ciii takes the form of new bus vehicles that will be purchased through Section 106 developer contributions to the County Council, which are linked to new housing sites being delivered close to these improved routes.

Civ - Nottingham Park & Ride upgrades

4.74 The bus priority corridors discussed in Themes Ci – Ciii are closely aligned to proposed improvements to Park & Ride capacity across the north and south of the city.

4.75 Theme Civ is focused on this outcome, which is important given most of the existing Park & Ride facilities in Nottingham reach capacity before 8am on weekday mornings. The Reference Case from the Strategic Transport Model for Derby and Nottingham forecasts that, without intervention, in 2043 there will be an AM Peak shortfall of:

- Almost 300 spaces at the Phoenix Park NET Tram Park & Ride site.
- Around 100 spaces at the Hucknall NET Tram and National Rail Park & Ride site.

4.76 Consequently, opportunities to intercept larger volumes of Nottingham-bound vehicle traffic are being lost. An increase in parking provision at these locations will help tackle urban air quality issues associated with vehicle traffic entering the city centre and using the ring road by encouraging public transport uptake. Our TCF2 **Low investment package** will allow for:

- Expansion of existing parking facilities at 'Hucknall' and 'Phoenix Park' Park & Ride sites to increase capacity, creating an additional 450 spaces across the two sites.

- Introduction of a new Park & Ride at the A60/A614 Leapool roundabout to the north of the city. As noted in Theme Ciii, this will be complemented by a dedicated busway and a high level of bus lane provision on routes into Arnold, Bestwood, City Hospital and Nottingham city centre.

4.77 The **Medium** (further expansion of the Hucknall Park & Ride to allow for an up to 450 space expansion in parking capacity here – a net increase of 340 spaces over the Low package) and **High** (new 240 space NET Tram Park & Ride adjacent to the Wilford Lane tram stop) **investment packages** for Theme Civ add a further 590 spaces of Park & Ride capacity for the city. Since both of these sites are located adjacent to the existing NET Tram line, the availability of parking close to the route is currently the main element of capacity constraint. As such, the proposed additional investment in these two sites (and Phoenix Park) is not expected to result in additional operational costs for the tram's operator. The expansion of the Hucknall Park & Ride will also add capacity for rail travellers who use the site to 'railhead' into Nottingham and Mansfield. As such, the Medium investment package at this site is considered a long-term option that adds capacity to support long-term housing and employment growth in the surrounding area.

Cv – Nottingham LCWIP priority cycle corridors

4.78 Alongside the bus and Park & Ride focused improvements discussed above, Theme C of our TCF2 proposals also incorporates significant Nottingham-focused cycling interventions.

4.79 The various cycling improvements which make up component Cv connect into a number of already completed schemes, or investments that are currently being delivered to the Nottingham urban area's walking and cycling network. These include upgrades to the OR3 Ring Road cycle route (funded through TCF Tranche 1), the Eastern Cycle Corridor (the A612 cycle route extension and Trent ped/cycle crossing will further enhance the Local Growth Funded improvements along Daleside Road to Colwick) and the Western Cycle Corridor along Castle Boulevard (funded by the D2N2 Local Enterprise Partnership).

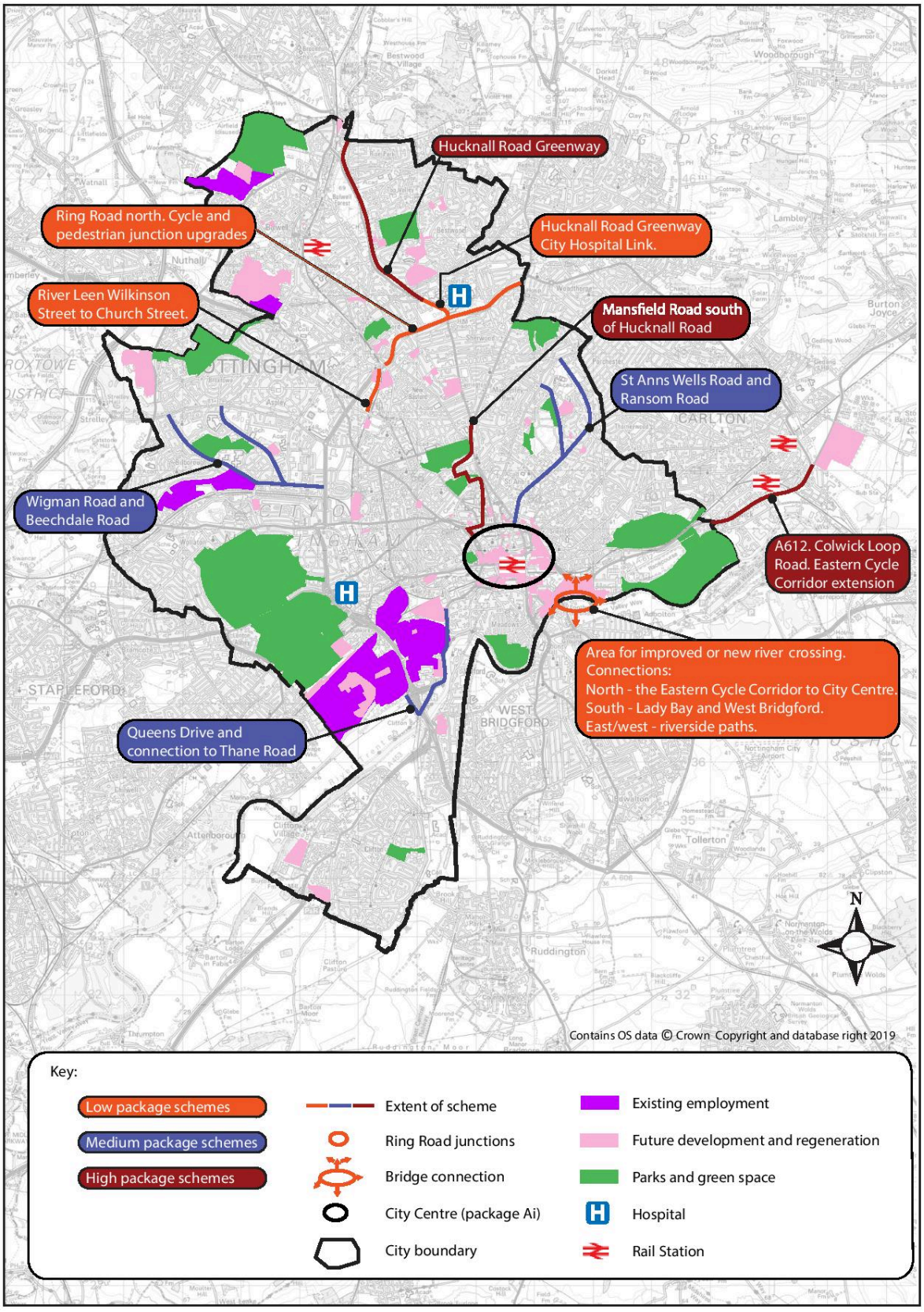
4.80 The extent of our ambition is illustrated in Figure 4-25, which shows how the corridors we are targeting link closely to significant existing workplaces (2 x Hospitals, 4 x University Campuses, the Lenton commercial and industrial areas), district centres, and future growth/regeneration locations.

All cycle facilities will be delivered in line with Nottingham City Council's well-respected Cycle Design Guide. We prepared it with Sustrans and the guide is regularly used by other local authorities. We welcome the release of DfT's updated LTN on cycle design, the draft of which includes references to/images of recent cycle schemes delivered in the city.

4.81 Our **Low investment package** (summarised in Table 4-3) picks out the key priorities, and those at the highest state of readiness for delivery, as identified through ongoing LCWIP stakeholder engagement activities (see Table 3-1 for details). These scheme proposals are all:

- At concept or outline design stages of development.
- Have clear political support.
- Have potential to genuinely transform local people's experiences and enjoyment of urban cycling in Nottingham – by widening key routes, lighting popular canal-side paths and filling missing links to key destinations.
- Part of delivering a step-change in the extent and quality of dedicated cycle network provision, with the new or upgraded pedestrian/cycle river crossing significantly reducing journey times and distances for people travelling between West Bridgford/Lady Bay and the city centre plus Waterside / Eastside / Southside regeneration areas. This is also expected to improve walking connectivity for people making similar local trips, including for supporters heading to the nearby football and cricket grounds. A series of concept visuals have been developed in respect of this crossing, and are shown in Figure 4-26, alongside the existing provision (highlighted in red).

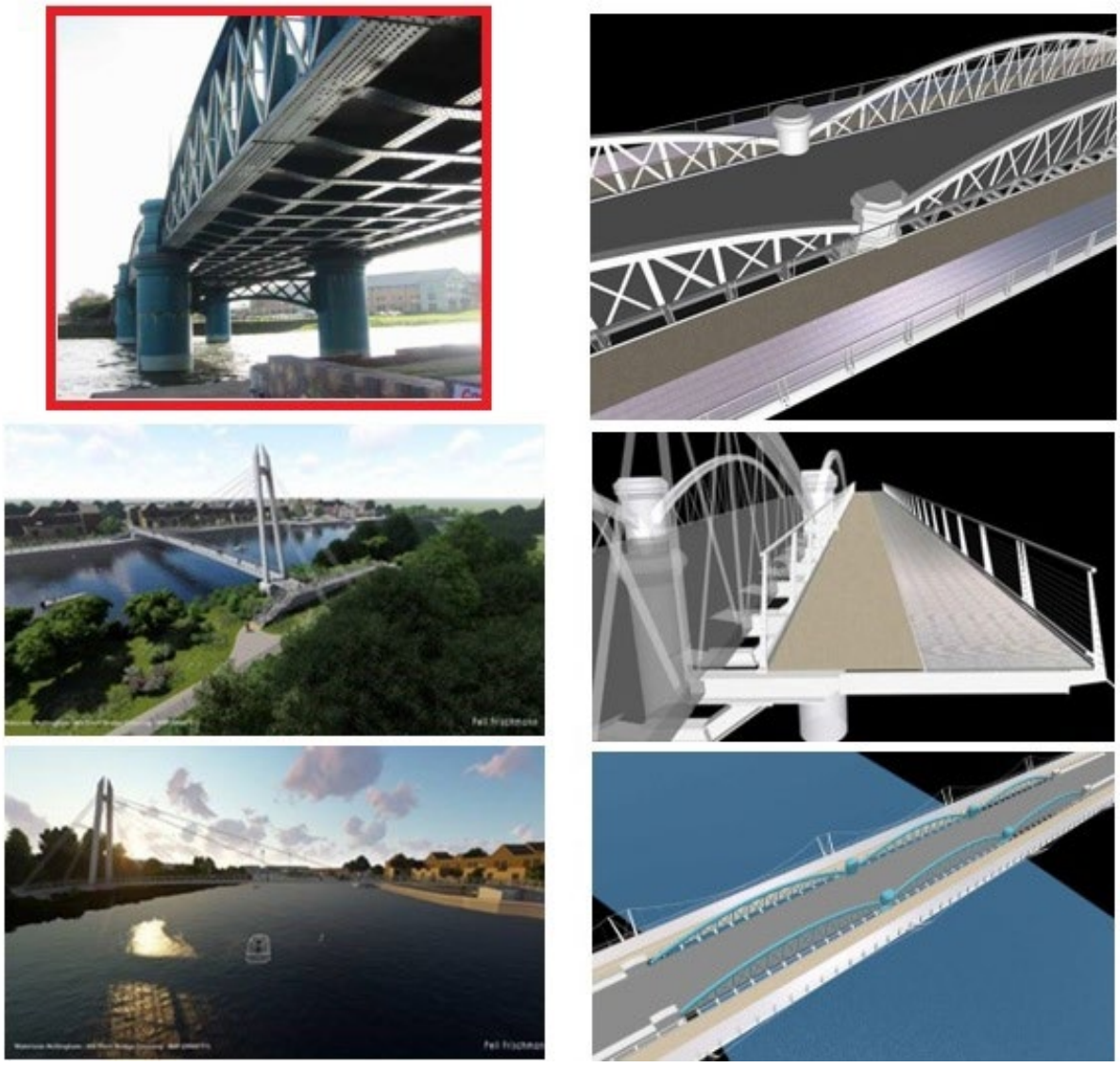
Figure 4-25: LCWIP priority cycling proposals included in our TCF2 programme



4.82 In delivering these schemes we can draw on recent successes and experience of establishing the Western (Castle Boulevard/Abbey Bridge) and Southern (NET Phase 2 to Clifton) Cycle Corridors, as well as the Boots Enterprise Zone/Science Park walking and cycling bridge over the mainline railway between Nottingham and London. Major improvements like the Western Corridor have been widely popular with people who cycle in Nottingham, of whom:

- 8 in 10 thought their journey was now safer.
- 75 per cent said their journey was more pleasant.
- 6 in 10 use the corridor to get to work or education.

Figure 4-26: Current and proposed River Trent ped/cycle crossing options



4.83 The **Medium and High investment packages** proposed in our TCF2 bid (as summarised in Table 4-3) all radiate outwards from the city centre focused improvements we have included in our Theme Ai component, and link new and existing residential areas with a mix of low income, student accommodation, and employment growth sites across the city. These schemes are at a lower state of readiness than those in the Low package to align with resource programming and ensure the Council can deliver a steady stream of improvements throughout the funding period, but are all deliverable within the remaining four years of the Transforming Cities Fund programme period.

4.84 The cycle investment proposals along Queens Drive, Mansfield Road, Hucknall Road, and the Colwick Loop Road are deliberately aligned with the Nottingham-focused bus priority improvements defined in packages Ci to Ciii. Their co-design and delivery will minimise disruption for road users and local residents/businesses, maximise the value and journey time benefits of bus lane improvements for passengers (by reducing the need for cyclists to use them) and enable us to significantly accelerate the process of transforming Nottingham's main arterial routes.

Cvi - Sustainable workplace travel capital grants – Nottingham

4.85 The Workplace Travel Service (WTS) has been operating in Nottingham since November 2017. To date the funding has supported the introduction of 125 workplace charging points; 30 cycle shelter; 57 cycle storage lockers; 8 cycle showers and 20 pool e-bikes. The initial scheme was due to run until March 2020, however following overwhelming interest from businesses and public sector organisations, the current funding allocation will be awarded in full before the end of the year.

4.86 Capital funding through the Transforming Cities Fund will help to support local organisations to implement sustainable travel practices via small capital grants to enable businesses to install cycle storage, showers, changing areas, pool bikes or other sustainable travel schemes. This scheme will provide improved sustainable access to employment opportunities, therefore helping to alleviate congestion and improve air quality and reduce emissions from commuter journeys.

4.87 Under the Low Package, support for around 48 businesses/organisations is possible. At the higher level, 80 organisations could benefit.

Theme D: Derby Urban Growth Corridors

4.88 This Package aims to improve public transport and cycling links between the centre of Derby (and existing residential areas with higher than average levels of unemployment) and new housing/employment growth locations to the south and west of the city.

4.89 In line with DfT's rebalancing toolkit, a significant portion of these investments will benefit residential communities situated in the north-south 'band' that runs through the centre of Derby, and which are identified in Figure 2-12 as the locations in Derby with the highest levels of multiple deprivation. By connecting these locations directly to new employment sites (such as Infinity Park and Boulton Moor to the south of Derby) and existing employment locations (such as along the A61 corridor to the north of the city centre), the investments present considerable scope to improve travel horizons and access to opportunity for people who are not in education, employment or training (NEET). Investments in this package have been prioritised because of their deliverability and ability to enhance public and sustainable transport links to new employment and residential areas that are already allocated in the Local Plan and have early phases being delivered.

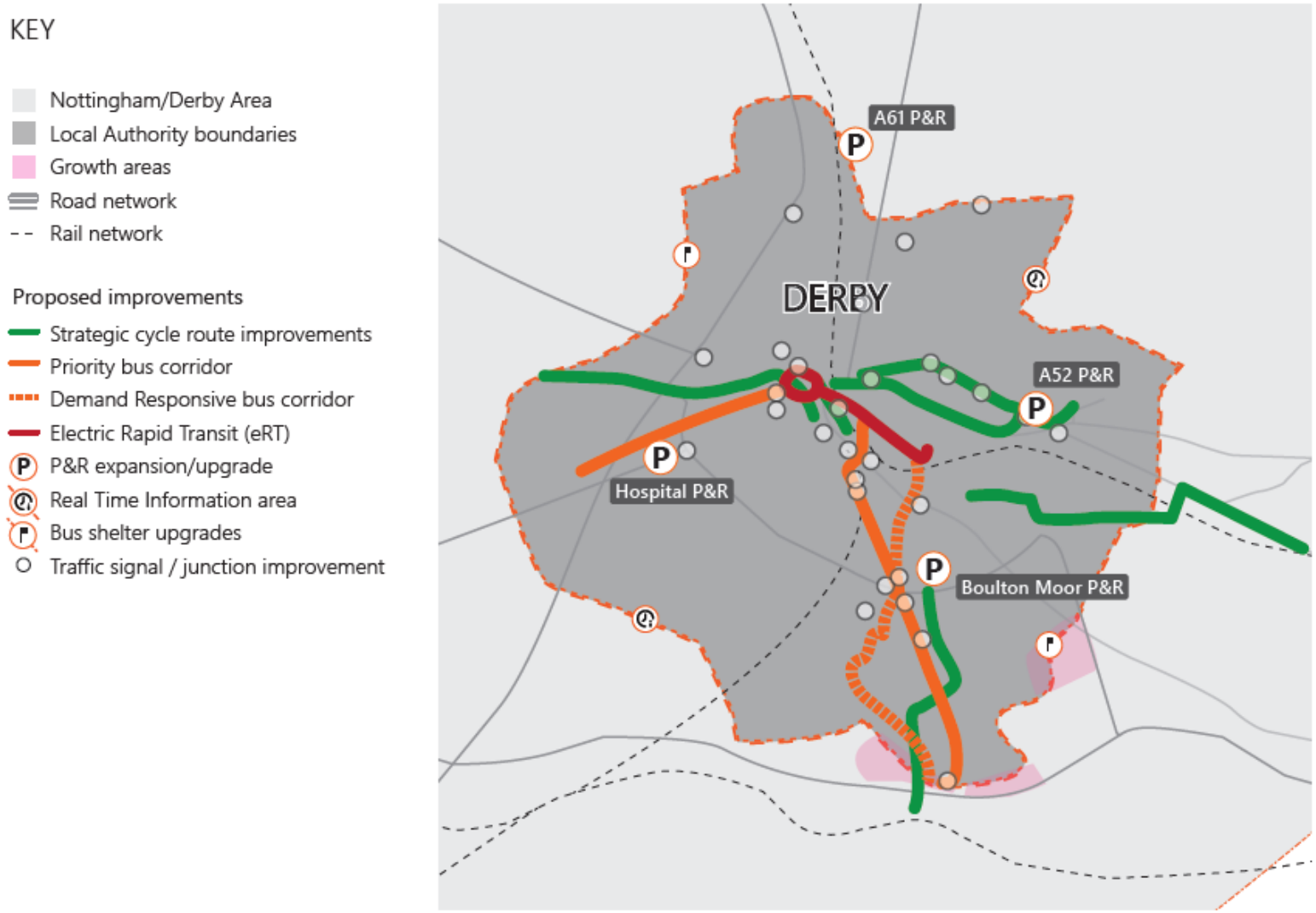
4.90 Table 4-4 provides details of all scheme components to be delivered under Theme D, with 'whole scheme' costs provided inclusive of DfT Capital, local and private sector match funding contributions, and costed allowances for risks and inflation.

Table 4-4: Low/Med/High breakdown of Theme D scheme components

Component		Description	Low package		Medium package		High package	
			£m	Deliverables	£m	Deliverables	£m	Deliverables
i	Derby Smart Park & Ride Hubs	Develop new/improve existing P&R sites, to include associated pedestrian access, and bus/cycle priority along related routes linking the sites with Derby city centre and upgraded RTI, waiting facilities and EV charging points.	5.4	• 0.25km bus lane on A52 and 2 x prioritised access junctions • New 200 space A52 P&R Hub at Megaloughton Lane, east of Pride Park • 20 x EV charging points at the new A52 P&R Hub	6.8	• Low package • 600m bus lane on London Rd and 1 x bus priority junctions • New 400 space P&R Hub at Boulton Moor near A6/A50 junction • 850m cycle lane to P&R • + 40 x EV charge points at Boulton Moor Hub	10.5	• Low + Med package • 0.15km bus lane and 2 x priority junctions on Uttoxeter New Rd plus 150m cycle lane serving new Mickleover Hub • New 200 space P&R Hub on A61 (Derby North) and 2 x bus priority junctions • + 20 x EV charge points
ii	Bus + rapid transit links	A mix of measures to enhance key bus partnership corridors in Derby, with the addition of a new high-priority electric Rapid Transit (eRT) link and infrastructure to support a demand responsive bus service that links Infinity Park growth area with key employment sites.	14.8	• Infinity Park – City Centre DRT service (route infrastructure upgrades) • 1.5km of dedicated eRT route: City - Pride Park • 10 key corridor junction improvements • 100 bus shelters upgraded • 40 RTI displays upgraded to TFT screens	21.1	• Low package • Extended DRT stop provision • +1km eRT route • +5 junctions improved • +50 bus shelters upgraded • +20 RTI displays upgraded to TFT screens	25.9	• Low + Med package • Further extended DRT stop provision • +0.6km eRT route • +10 junctions improved • +75 bus shelters upgraded • +29 RTI displays upgraded to TFT screens

Component		Description	Low package		Medium package		High package	
			£m	Deliverables	£m	Deliverables	£m	Deliverables
iii	Derby LCWIP priority cycle corridors	Improvements to cycle routes and cycle infrastructure with a focus on providing sustainable, high quality, signed and street lit cycle routes. The majority of routes will be segregated from the carriageway to provide a safe environment in which to ride.	8.0	• 4.4km 3.0m wide route along Slack Lane. 3x crossings. • 3.2km 3.0m wide City Centre – Raynesway route. • 6km advisory cycle lanes added to Nottingham Rd in Derby (Chaddesden) for Pentagon Island – Raynesway section of route • 6 x priority junction improvements	8.6	• Low package • Addition of street lighting in public spaces along Slack Lane cycle route	10.1	• Low + Med package • Entire Slack Lane cycle route additionally street lit • Addition of street lighting along City Centre – Raynesway route • Extra 1.65km segregated 3.0m wide route Spondon - Raynesway
iv	Sustainable Workplace Travel Capital Grants - Derby	Small, match-funded capital grants to enable businesses to install cycle storage, showers, changing areas, pool bikes or other sustainable travel schemes.	0.2	• Workplace Travel Capital Grants.	0.2	• Low package	0.2	• Low package

Figure 4-27: Theme D – Derby Urban Growth Corridor proposals



Di - Derby Smart Park & Ride Hubs

4.91 This component will strengthen the existing network of Park & Ride sites around Derby, increasing the total number available from two to four and significantly enlarging the total number of P&R spaces available.

4.92 Three completely new Park & Ride sites will enable the City Council to close the two existing locations (A61 Meteor Centre and A52 Pride Park) which are both sub-optimally located in relation to the traffic congestion the city now experiences, with one being affected by Derby County Football Club's operations on up to 25 days each year. We will also expand an existing parking site at Uttoxeter Road, Mickleover, close to Derby hospital, so that it can serve a dual purpose as a city centre Park & Ride and hospital overflow car park.

4.93 On-site provision of cycle parking and dedicated cycle routes nearby, EV charging points, e-bike charging and real time information at the stops will begin a process of establishing these Park & Ride sites as multi-modal mobility 'Hubs'. This concept also forms part of our Future Mobility Zone bid (the focus of which is on e-Mobility Hubs), which DfT is currently considering. The delivery of additional Park & Ride capacity across Derby will strongly support this approach.

4.94 The Low/Medium/High funding packages will enable us to scale-up investment in Park & Ride Hubs in-line with Table 4-4. Each of the Park & Ride Hub options has been discussed in greater detail below, in relation to the investment package through which they will be delivered:

- Low package: The A52 Megaloughton Lane P&R site is directly adjacent to the A52, and one junction further east from the city centre is at outline design stage. Consequently, we expect it to intercept a higher number of vehicle trips and deliver faster journey times, with dedicated bus priority along the A52 and through Pride Park into the city centre (linked to the eRT proposals described in Bii), than are currently possible via the existing Pride Park P&R site. Development of this site will facilitate eventual closure of the Pride Park P&R facility, which is affected by Derby County FC's home matches, and free-up parking capacity close to Pride Park Stadium and the adjacent multi-sport arena.
- Med package: The Boulton Moor (A6) P&R Hub (Figure 4-28) will intercept car traffic from one of the city's busiest road corridors, as well as improving public transport links to key employment locations and growth sites on approaches to the city centre. It will support the existing, high-quality, Skylink bus corridor, which connects Derby to East Midlands Airport and its neighbouring Gateway

employment growth area. Reflecting its proximity to employment land uses, the Boulton Moor Hub will also deliver 850m of dedicated cycle lane and 600m of bus lane along London Road on its approach into Derby. Outline designs have also been prepared for this site, which has been allocated in the Local Plan and is reserved for Park & Ride through a Section 106 agreement with developers.

Figure 4-28: Outline design for Boulton Moor (A6) Park & Ride site



- High package:
  - The A61 (Derby North) Park & Ride Hub is at outline design stage, and will enable the eventual closure of the Meteor Centre Park & Ride site. Its location closer to the A38 should help to intercept a larger number of vehicles with junction priority and bus lane extensions into Derby accelerating all bus services on this north-south route.
  - Derby Uttoxeter Road, Mickleover P&R will strengthen cross-city (E-W) bus links and improve the speed of public transport connections between the New House Farm development (1,000 homes + supermarket) to the west of Mickleover and the nearby Rykneld Road (900 homes) strategic housing

allocation. The Hub itself will expand hospital overflow capacity (established at Manor Park car park), while benefitting from dedicated, camera-enforced, bus lane and traffic signal priority, as well as stop infrastructure improvements along the B5020 / Uttoxeter New Road from New House Farm into the city centre. These corridor improvements will benefit all bus services along this route – not just the P&R link. This Hub is at concept stage, although much of the car parking and bus stop infrastructure already exists to serve the Hospital's needs.

4.95 The Boulton Moor and Derby Uttoxeter Road, Mickleover P&R Hub sites could both maximise private sector developer contributions (secured through S106 agreements) by merging bus services linked to new nearby residential and employment sites with the Park & Ride bus connection.

4.96 It is pertinent to note that the proposed Park & Ride site options have been modelled in slightly different investment packages. This reflects the need for the strategic model tests to be commissioned well in advance of the SOBC submission deadline, which fell at a time when this Theme component was being refined. Specifically, the A52 (Megaloughton Lane) and A61 (Derby North) Park & Rides were tested in the opposite investment packages to those they are presented in above.

4.97 We also note the practical possibility that Park & Ride sites may not be delivered in the Low/Medium/High sequence illustrated above, on the basis that we will need to be responsive to site development and land acquisition opportunities as they emerge over the TCF Tranche 2 programme period. The scale and timeliness of DfT's eventual TCF funding commitment will guide our decision-making on this.

Dii - Bus and rapid transit improvements

4.98 As the largest element of each Theme D investment package (Low/Med/High scales), the bus and rapid transit improvements seek to establish a considerable step-change in the quality, reliability and in-service journey times of bus services in Derby.

Infrastructure to support a new Demand Responsive Transport service

4.99 Support for the proposed **Demand Responsive Transport** service scales-up through the Low/Med/High investment packages, and will contribute to the cost of developing the digital infrastructure (localisation of algorithms and analytics that power the consumer-facing app and back-office operating systems) needed to deliver the new service. The City Council is in discussion with local operators to establish a demand

responsive service (similar to the Arriva Click model operating in Leicester, Liverpool and Sittingbourne) as a primer for a new intra-urban bus route.

4.100 The service itself will use mid-size bus vehicles with no fixed timetable or routing. Instead, passengers will request a journey via an app from a pick-up point of their choosing. The bus will operate within a defined area and routing will adapt to passenger demand. This will complement existing public transport services by making public transport accessible to a wider demographic, and across a wider range of operating hours.

4.101 DRT offers an innovative alternative to car travel to the Southern Derby Employment Zone (SDEZ), the growth of which is focused around the Rolls Royce campus in Sinfin. The potential to provide additional flexible services between Derby's main rail and bus stations, and the SDEZ and adjoining major employment sites, addresses a lack of current public transport options for people commuting to these locations. At present, the 2.5 miles between the city centre and rail station/other bus connections is a barrier for some commuter journeys. Furthermore, existing services are sometimes incompatible with shift patterns or the flexible working hours. The DRT will provide a viable alternative to driving, in cases where an existing timetabled service does not meet the requirements of the user.

4.102 The infrastructure investment sought through TCF2 will also help to grow existing services and establish new bus links to the Derby southern growth corridor and Derby city centre. By reprioritising road space along the London Road / A6 bus partnership corridor we anticipate delivering:

- Dedicated bus priority lanes from the City Centre, through Pride Park and along London Road to Ascot Drive, to address AM and PM peak hour traffic congestion delays to bus services.
- Traffic signal and junction approach priority along Ascot Drive, and beyond, to provide a queue-jump facility for bus services to Rolls Royce and Infinity Park sites.
- A new, direct, bus connection to Derby rail station and onwards to the main bus station from the south of the city (via Ascot Drive, which is not currently a route served by buses). This will remove the need for interchanges to access key city centre destinations, and widen the range of direct home-work journey options for new and existing residents to the south of the city. For people travelling in the opposite direction, the bus priority measures will improve the quality of onward connections from Derby rail station to key employment sites south of the city.

Bus partnership corridors

4.103 This investment will be complemented by the City-wide Derby 'Partnership Corridor' proposals, which also scale in-line with Low/Med/High TCF funding levels – as shown in Table 4-4 The Enhanced Partnership proposals will be delivered jointly by the City Council and bus operators, in line with Bus Services Act guidance, to target the following measures along key routes:

- **Junction improvements**. Under the low funding package, improvements will be made to Uttoxeter Road/Osmaston Road/Kedleston Road. The medium package will extend these to Burton Road/Sinfin Lane and the high package will include further improvements to the wider network and points where bus services cross/circulate around the Derby inner ring road.
- **RTI screen upgrades**, which will include TFT screens that are more reliable, easier for people with sight impairments to see and comprehend and use less energy than older models. Up to 89 RTI locations will be upgraded (in the High package).
- **Bus stop infrastructure**, which will include upgrading shelters that are in poor condition at up to 225 locations across the city, so as to include electronic information screens and solar power trails for energy supply.
- **Totem style interactive journey planners**, which form part of the High investment package are to be focused upon key interchanges, including the hospital, university, rail station and interchanges on the ring road.

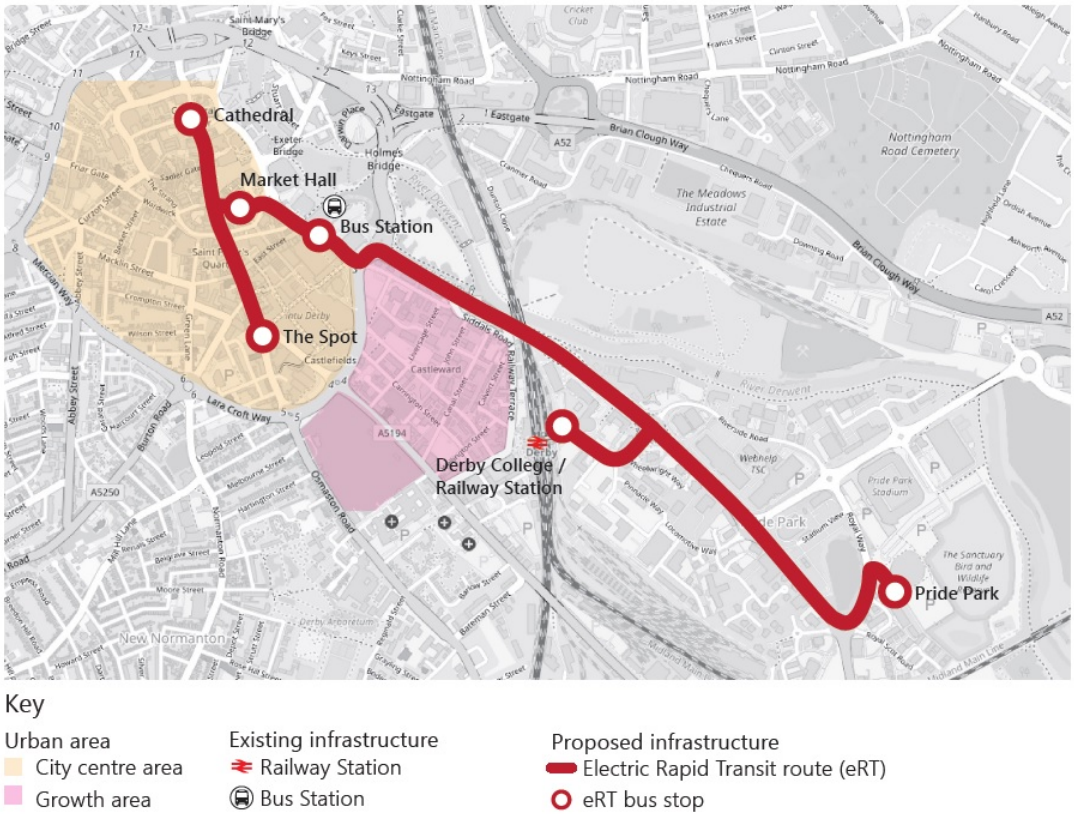
4.104 In return our expectation is that bus operators will agree to operate at higher frequencies than are currently achieved along the following routes:

- Duffield Road – sixes through to Belper/Matlock, potential to increase frequency from two buses per hour.
- Kedleston Road – Allestree, already 7/8 min frequency.
- Mansfield Road – through to Alfreton/Ripley/Heanor, potential to increase frequency from 4 buses per hour.
- Uttoxeter Road – Mickleover, already 7/8 min freq.
- London Road – Shardlow to East Midlands Airport.
- Osmaston Road – Chellaston.
- Stenson Road – Littleover, Findern.
- Ring road – new ring road service to connect interchanges (hospital, rail station) and district centres.

Electric Rapid Transit (eRT)

4.105 Finally, the main component of this package is an **electric Rapid Transit (eRT) link** that seeks to establish Derby's first dedicated mass transit link across the city. The proposal is to provide a high-quality dedicated Bus Rapid Transit route directly across the city centre, linking some key intra-city destinations and public areas targeted by the city's 'Streets and Squares Strategy' and re-animating the High Street (in line with our Future High Street Fund proposals). The eRT route will be a key investment in revitalizing the public transport offer in Derby, providing a new and innovative service and experience, which will include extensive traffic-free routing (see Figure 4-29).

Figure 4-29: Outline route plan for Derby's new eRT service



4.106 The eRT service will incrementally connect:

- The Cathedral Quarter: an expanding city living area to the north of the retail core
- Joseph Wright College, which is a learning hub for 1,600 students in Derby.
- The main high street and intu Shopping Centre.
- Riverlights Bus Station on the Morledge.
- Derby Rail Station and Derby College Roundhouse campus (2,000 students.

- Pride Park Enterprise Area and existing Park & Ride site, which also directly serves the football stadium and Derby Arena (including Velodrome).

4.107 The eRT service aims to inspire future change across the network and revolutionize the vision for public transport in Derby by providing a high-quality direct service that meets growing travel demand generated by students, commuters, shoppers, and the 10,000 employees who work in the Pride Park employment zone.

4.108 In combination with DfT's investment in component Di, there will be future scope to extend the eRT route to the Megaloughton Lane (A52) Park & Ride site, provided sufficient priority can be achieved at key junctions along the A52. Our aspiration is for the route to be operated by electrically powered vehicles akin to the Vanhool Excqui.City which delivers the popular Belfast Glider service, with the route establishing an infrastructure-light (i.e. delivered within existing highway boundaries) basis for a city-wide rapid transit network in the longer-term. The eRT link is currently at concept design stage, with an emerging outline engineering design and early support from local stakeholders. Our local bus operators have indicated their belief the service would be commercially viable and that there is an appetite to support its delivery.

Diii - Derby LCWIP Priority Cycle Corridors

4.109 Based on key opportunities identified through the participatory development of Derby's Local Cycling and Walking Infrastructure Plan, our TCF2 proposals for the city include a series of high-quality, largely segregated from vehicle traffic, cycle routes. These investments are scale-able, per Table 4-4, and will be delivered as follows:

- **Conversion of a former railway line to establish the Mickleover cycle route along Slack Lane** (see Figure 4-30 and Figure 4-31). This high-quality, traffic-free pedestrian and cycle route will connect Friar Gate/Stafford Street in the centre of Derby to Station Road, in Mickleover. The route is identified in the Derby Local Plan as a future transport corridor and the D2N2 LCWIP proposes a high-quality macadam surfaced and street-lit route. It will pass close to several schools, link new housing development and improve the cycle network into South Derbyshire. We envisage this route connecting into existing high-quality through-city cycle connections (e.g. Derby Riverside path) to provide continuous and cohesive cycling connectivity between Mickleover, Royal Derby Hospital, city centre, Derby rail station, Spondon, and the Raynesway employment area. DfT investment at Medium and High levels will enable us to street light the route; maximising scope for year-round utilisation.

Figure 4-30: Derby – Mickleover segregated cycle route (eastern section)

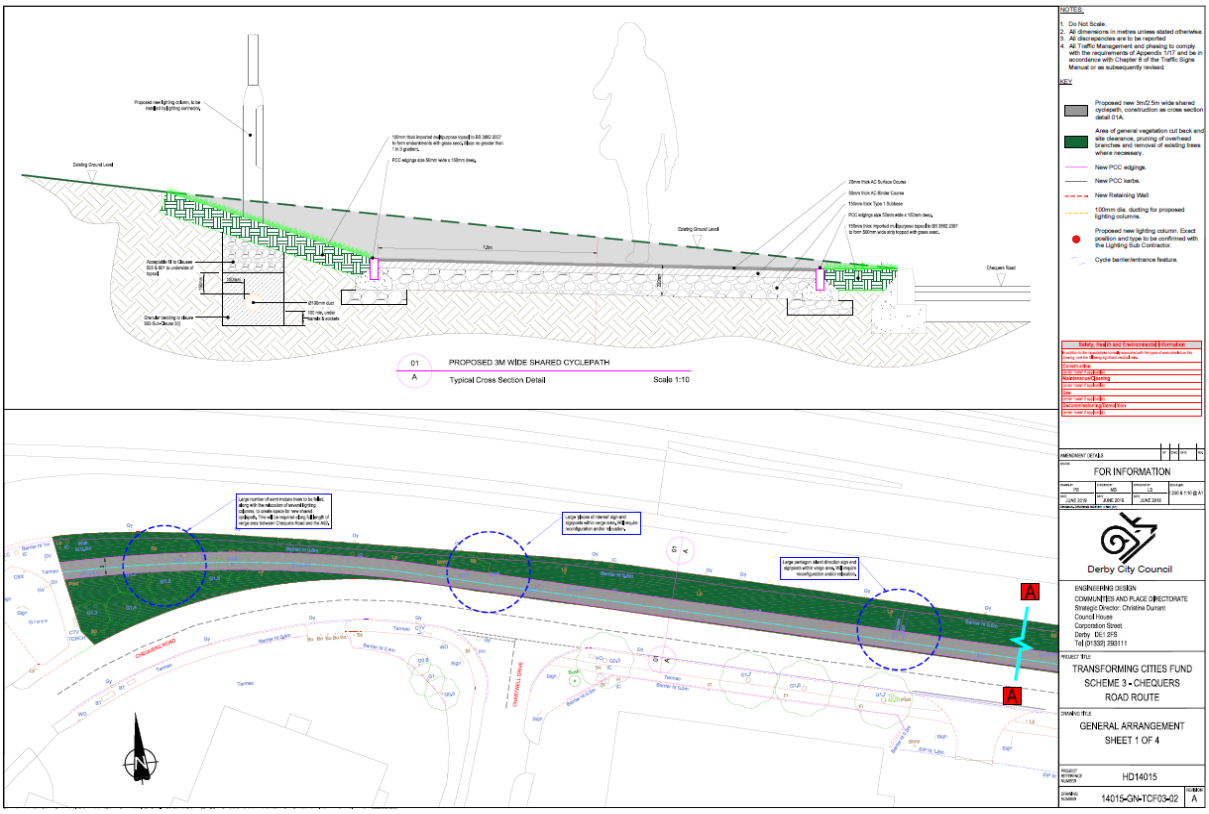


Figure 4-31 Derby – Mickleover segregated cycle route (western section)



- Establishing a **largely traffic-free shared use walk and cycle route from Derby City Centre to the Raynesway employment area** via Chequers Road, a new A52 ped/cycle footbridge (being delivered as part of ongoing works to the Wyvern Way highway junction) and Meadow Lane/public open space in Chaddesden (see Figure 4-32). This scheme focuses on providing a sustainable, high quality macadam surfaced, signed and street lit cycle route of 3.2km in length, which is segregated from the carriageway. The route is largely uninterrupted by side roads and other restrictions and will provide a fast and efficient link. The route will also provide cyclists with a much safer route, when compared with using other highway routes. The alignment of the route forms part of the cycle expressway to Nottingham (Theme/component Bi) from the eastern suburbs of Derby and Derby City centre. The route will also link many established residential areas and existing light industrial/commercial premises around the Pentagon island and Chequers Road industrial estate.

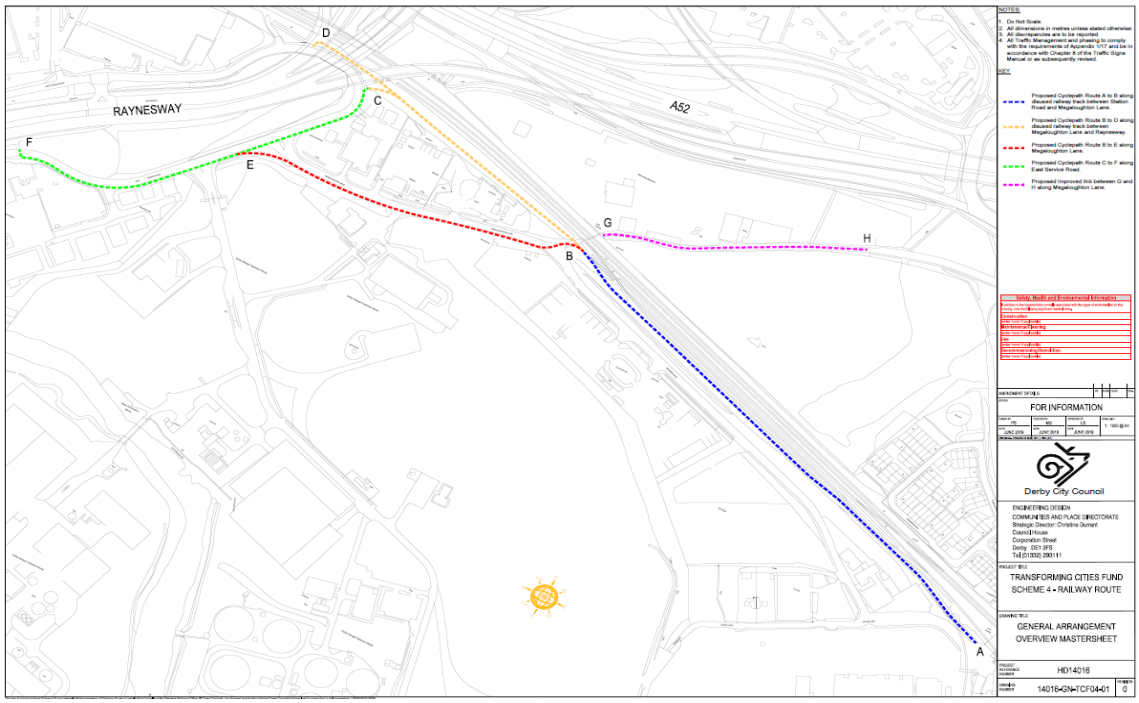
Figure 4-32: Chequers Road scheme designs



- Extending this route out to **Spondon via Nottingham Road in Chaddesden**, which would run for up to 8.54km and deliver priority improvements at a total of four junctions, including the provision of signal-controlled Toucan crossings.
  - The section nearest the city centre introduces 1.5m wide on-road advisory cycle lanes on both sides of the carriageway from Pentagon Island to Raynesway. It will re-apportion carriageway space in favour of cycle facilities, narrowing wide lanes that currently exist, and adjoin the existing off-road cycle route at Pentagon Island and Raynesway to complement other facilities connecting the corridor. Signed routes will also be provided that link to the nearby residential areas of Chaddesden, Oakwood and Spondon including a number of infrastructure improvements where links are required.
  - High investment will additionally deliver the Raynesway to Spondon link (see Figure 4-33) which extends TCF Tranche 1 interventions to establish a 3.0m-wide route between Station Road in Spondon and Raynesway employment area. It follows a former rail alignment to the Raynesway service roads, with scope to link through to Megaloughton Lane (which connects to the existing off-road cycle route on Raynesway and is the site of a new Park & Ride proposed in component Di). Improvements to the Spondon traffic island and

Asda store entrance will ensure safe road-crossing with street lighting along the length of this additional link.

Figure 4-33: Raynesway / Spondon LCWIP route options



Div - Sustainable Workplace Travel Grants – Derby

4.110 This scheme plays an essential role in locking-in the benefits of wider TCF investment, by providing small-scale grants to help fund sustainable transport facilities at workplaces and other organisations across the city. For instance, to encourage people to use new/improved TCF cycle corridors, people also need the ability to securely park their bikes and use changing facilities at their destinations (often workplaces).

4.111 The scheme was originally launched in 2015 and has been successful in levering match funding from local organisations (£350k of capital grants awarded, and over £500k in match funding secured). In addition, the scheme helps to ensure local organisations undertake staff travel surveys and implement Travel Plan targets, since this is part of the conditions of the grant agreement. The request from DfT, for £150k in total, is the same across each of the Low/Med/High investment packages.

Forecast programme-level impacts

4.112 Detailed economic appraisal and forecasting for the proposed schemes is presented in the following chapter; however significant benefits are expected as the proposals complement the existing strong public transport and active travel networks in Derby and Nottingham.

4.113 Our 'High' TCF2 investment package is estimated to provide a total of £667m of transport benefit from different sources, including £471m of improved journey time benefits through bus and tram network improvements (2010 prices).

- Expanding the local EV charging network to provide **215 additional EV charging spaces** across the two cities, and generating a saving of **8,085 tonnes of CO_{2e}** from extending the local EV chargepoint network[22].
- **2,590 additional Park and Ride parking spaces** at bus and tram sites will encourage drivers to use cleaner modes for greater proportions of their journeys. A **new 'eRT' route in Derby** will provide much needed park-and-ride capacity in Pride Park and alleviate congestion on a key route into the city centre.
- For active travel, **77 kilometres of new cycling infrastructure** benefiting new and existing users is proposed, and a behavioural uplift of around **9,118 additional cycle trips per year** is expected to be attributable to the 37 schemes proposed; including a pedestrian/cycle river crossing at Lady Bay, complementing Nottingham's existing Eco Expressway.
- In both Nottingham and Derby city centres, investment in up to **4.9km of greatly improved urban realm** will bring walking benefit and regeneration effects around the corridors linking to rail stations. This will have a wider economic impact, stimulating business and investment in both city centres and greatly improving the townscape to complement their respective high-quality transport networks.
- Workplace travel grant schemes in both Nottingham and Derby, providing match funding for clean transport incentives in businesses and workplaces in each city.

4.114 Based on precedents from previously delivered local interventions (including the NET Tram lines, Eco Expressway sustainable growth corridor, successful Park & Ride sites, high quality dedicated cycling corridors, bus lane and traffic signal priority improvements, and integrated fare payment/smartcard systems) we fully expect the

[22] Note that further CO2 saving from additional or faster public transport and vehicle trips generally was also appraised and reported monetarily

benefits to be highly positive, and aligned closely with DfT's objectives for the Transforming Cities Fund.

TCF Tranche 1 and FMZ proposals additionality

4.115 As noted previously, we have been mindful to ensure our Transforming Cities Fund Tranche 2 proposals build iteratively on funded Tranche 1 'quick win' projects that are currently being delivered, as well as dovetailing neatly with the more innovation-focused proposals presented in our recent Future Mobility Zones bid.

Building upon TCF Tranche 1 investments

4.116 The key links between our TCF Tranche 1 and 2 packages and schemes are:

- Extension of bus traffic light priority and smart bus real-time systems to benefit more corridors and congested junctions; widening journey time reductions for bus passengers and optimising traffic flow for more road users. Through TCF Tranche 2, these will be coupled with physical measures and extended bus lane cameras to speed-up bus services and reduce journey times along more routes.
- Further extension of our Go Ultra Low City-initiated EV charging network, to deliver a mix of Rapid and Fast charging options at Park & Ride 'smart hubs', and other key public transport interchanges across the area. The extension of capacity-constrained NET tram Park & Rides, and delivery of up to five new Park & Ride locations across both cities (through TCF Tranche 2) will increase the number of publicly-owned locations where ULEV users can charge-up when on the move.
- Subject to their impact, the smart traffic camera technologies being piloted through TCF Tranche 1 have scope to be rolled out across a wider range of urban and inter-urban highway corridors, in parallel with our traffic signal priority improvements for bus services.

4.117 Table 4-5 summarise how TCF Tranche 2 funding builds on Tranche 1 investments that are currently being delivered to public transport and cycle networks.

Table 4-5: Key differences between TCF Tranche 1 and Tranche 2 investments in public transport and cycling

TCF Tranche 1 Component	Relationship to TCF Tranche 2 proposals
Bus priority at key junctions along A52 corridor between Nottingham and Derby	Significantly expand priority signalling at junctions to enhance the efficiency of the buses serving the two cities and urban fringe locations. Priority for buses, under Tranche 2, will take place along more key corridors and around transport nodes that often experience high peak hour traffic volumes.
Smart camera trial to better under bus reliability and traffic flows along A6005 and A52	Data collected from this trial will guide proposed improvements to Nottingham and Derby's back office RTI system to ensure it offers comprehensive and up-to-date travel information to the public. Bus operators will also have access to the traffic flow data being collected by the smart camera trial.
RTI display upgrade: TFT screens at key employment sites and bus route LCD screens	These screens will act as useful on-street infrastructure to promote new Robin Hood fare options to be developed in Tranche 2. The new content management system, and improved RTI back office systems will improve the quality and range of information these new screens can display.
Consolidation of real-time data feeds enables non-INIT feeds to be accepted into the system.	Proposed investment in a new content management system for the Derby-Nottingham RTI and back-office systems will provide greater support and infrastructure for the consolidation of real-time data feeds, ensuring that travellers across the area can access level of service/disruption information.
Robin Hood on mobile enables smart phone ticket purchase	Tranche 2 funding will extend functionality to online purchase/top-up and via on-bus collection, further increasing the ways people can access tickets and making public transport easier to use.
Contactless tram platform ticket machine upgrade	Tranche 2 will extend contactless payment infrastructure across the entire tram network's ticket vending machines. Similar contactless payment upgrades in Derby will facilitate easier payment.
East Midlands Gateway electric shuttle bus charging hardware	Tranche 1 supported the delivery of a site-specific shuttle bus for employees at East Midlands Gateway, to connect them with scheduled services at the edge of the site. Tranche 2 extends this by enabling the introduction of demand responsive services between the Gateway, Airport and East Midlands Parkway, thus consolidating the links between key employment sites and growth areas.

TCF Tranche 1 Component	Relationship to TCF Tranche 2 proposals
Park and Ride electric vehicle charging infrastructure	Tranche 2 will further extent our local network of EV charging facilities by providing more rapid charging points at more P&R 'Hubs', key employment sites and community facilities. More chargers will support continued uptake of electric mobility and help improve air quality in both cities.
Nottingham to East Midlands Airport via Clifton Growth area cycle route improvements	Tranche 2 will extend the Tranche 1 cycle route improvements to East Midlands Airport, including along the Derby Canal Path (from Derby) and via the old A453 from Clifton directly connecting with the Tranche 1 works on the B679 and A453 (T) (Nottingham) to East Midlands Gateway, linking to local communities in Kegworth and Sutton Bonnington and University campuses in Clifton, Sutton Bonnington and the City Centre.
Nottingham to Derby via Nottingham Enterprise Zone cycle route improvements	Tranche 2 will extend this route to establish a cycle expressway along much of the A6005; connecting local communities by bike, such as Beeston, Chilwell, Long Eaton, Draycott and Borrowash. This expands on Tranche 1 investments by extending safer cycling infrastructure to enable more people living and working in Derby/Nottingham urban fringe locations to consider cycling as travel mode.
Spondon area cycle route improvements	Investments from Tranche 2 will build on the cycle improvements in the Spondon area by extending further to Borrowash from Derby's city centre (as part of the cycle expressway to Nottingham). This will provide important infrastructure to a larger pool of people and will encourage more commuting and everyday journeys by bike.

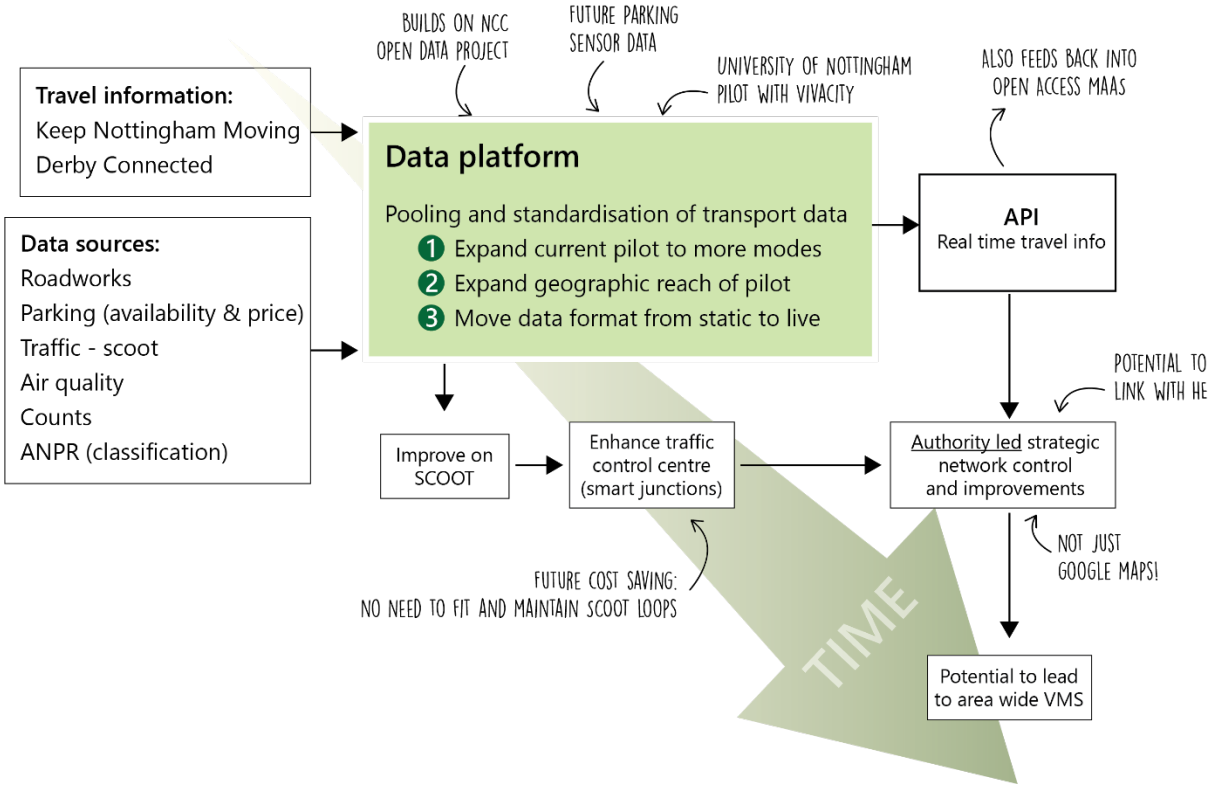
Links to Future Mobility Zone proposals

4.118 Our Future Mobility Zone (FMZ) bid to DfT also deliberately complements our TCF Tranche 2 proposals.

4.119 The **data platform** proposed in our FMZ bid will act as a repository for data on transport network operation and disruptions, thereby making the data available to a wider range of users enhancing the day-to-day management of traffic and public transport systems to facilitate easier movement of people and goods around Derby and Nottingham. Figure 4-34 shows the proposed (FMZ-funded) data platform is expected to function, and demonstrates how future-proofing the area's RTI back office

systems and expanding optimised traffic signal controls (and real-time data collection) will improve the volume and veracity of data that flows into the platform.

Figure 4-34: Proposed FMZ data platform functionality

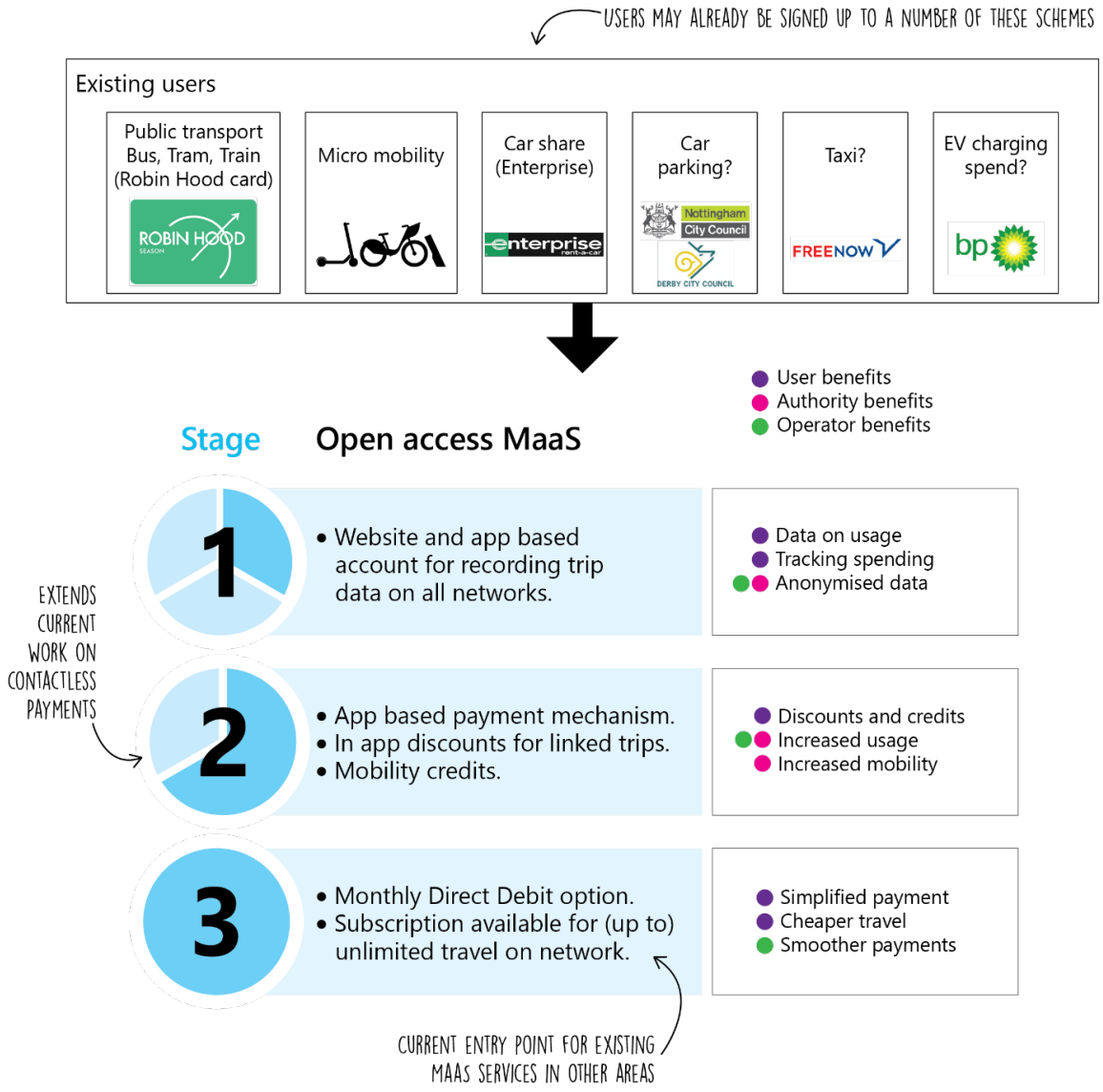


4.120 The introduction of **mobility credits** via a **Mobility as a Service (MaaS) platform**, proposed through our FMZ bid, will support the TCF objective of connecting people with employment opportunities. Figure 4-35 illustrates how TCF Tranche 1 and 2 investments in contactless, online and app-based payment for local public transport journeys will support the MaaS system. The fare discounts and mobility credits offered through our FMZ pilot could also help support the development and uptake of new, more tailored, Robin Hood fare products that are delivered through our TCF2 projects.

4.121 The FMZ proposals to create **electric mobility hubs** will complement the longer distance Derby – Nottingham – East Midlands Airport cycle expressway proposals put forward in TCF Tranche 2. The addition of e-bike charging facilities, linked to secure parking at key destinations, will help to expanding the travel horizons of e-bike users and accelerate uptake of this relatively new travel option. Our TCF2 proposals for bus priority improvements focused around new and expanded Park & Ride sites, and cycle corridor expansions, will also improve access to/from the e-mobility hubs proposed in our FMZ bid.

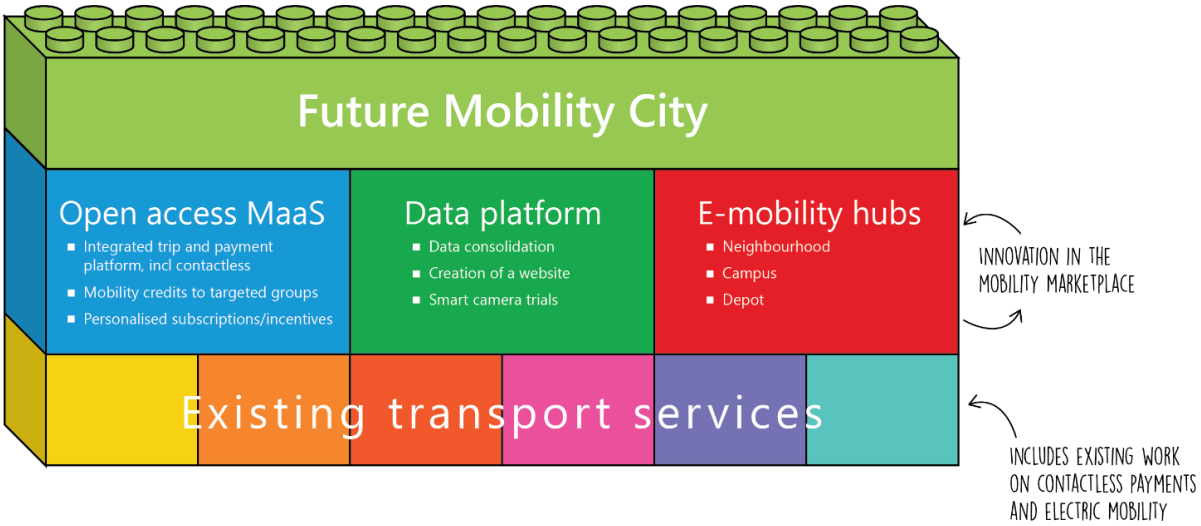
4.122 Whilst our TCF2 programme is focused upon improving physical connectivity, the FMZ Mobility Hubs and MaaS pilot will enhance the quality and innovation of the supporting digital infrastructure and interchange facilities that users of local public transport networks and cycle routes increasingly rely upon.

Figure 4-35: Proposed 'Open access MaaS' system delivered through FMZ



4.123 Figure 4-36 illustrates how our three FMZ programme components sit atop the existing local transport services that our TCF1 and 2 programmes are investing in. Whilst the FMZ projects aren't reliant on TCF projects, and vice versa, together they maximise the likelihood of delivering successful and effective schemes that make a real difference to the way people travel. By delivering them in parallel they are expected to enhance the quality and impact of outcomes in relation to DfT's aims and objectives for both the TCF and FMZ funding programmes.

Figure 4-36: Summarising the Proposed Future Mobility Zones Package



Other major investments in local transport networks

4.124 Our TCF2 proposals also link-up with major transport investments that are planned or have already been delivered across the Derby and Nottingham area. These include:

- **HS2**, which is expected to run between Derby and Nottingham. The proposed East Midlands Hub station is located on the edge of both cities' urban areas and at the centre of a growth zone for Toton. Our TCF2 programme's cycle expressway (along the A6005) and bus lane priority at key junctions along the A609, A6005 and A52 will help to facilitate more seamless travel to the HS2 station and new employment area adjacent to it.
- **A52 Wyvern interchange**, which is currently being remodelled by Derby City Council. Aside from improved highway access into Pride Park, this scheme delivers an improved ped/cycle footbridge over the A52 which are set to open in Spring 2020, and replace old stepped footbridges. This will help to address severance caused by the A52 dual carriageway, and is complemented by our proposed expansion of Derby's dedicated cycle routes along Chequers Road and Meadow Lane through the TCF Tranche 2 programme. With Pride Park, the Velodrome, Bombardier, Arcadis, and Rolls Royce all in close proximity, these improvements will improve active travel access to key employment sites across the east of Derby. It will also cater for large numbers of pedestrians attending sporting and cultural events at Pride Park.
- **East Midlands Railway's new franchise investment**, which is set to further improve passenger facilities at both Derby and Nottingham stations and add capacity to existing train sets in order to ease peak-hour crowding on local rail

services. Our TCF2 proposals for major city centre investments in high quality public realm, walking and cycling links that make it easier for people to get to and from Derby and Nottingham's main railway stations, to interchange with local bus services at our main city centre bus stations, and to discover our vibrant city centres.

- **A453 widening** has enabled the de-classification of sections of the old road, which our TCF2 proposals are seeking to incorporate into a longer-distance cycle expressway. This will connect South West Nottingham, and the Clifton South mixed use development (where 2,000 homes are set to be delivered in coming years), with East Midlands Parkway Rail station, Kegworth, East Midlands Gateway rail freight interchange, and East Midlands Airport.
- **The Boots Enterprise Zone cycle and walking bridge** over the main railway line between Derby and Nottingham (and Nottingham and London) is now complete, having been delivered using Local Growth Funds provided via the LEP. It is already well used, having improved direct walking access to the University tram stop, as well as direct cycle access onto Nottingham's western cycle corridor. Our TCF2 investments will further enhance the value of this link, by extending the western cycle corridor to the edge of the Nottingham urban area (through Beeston to Chilwell and Long Eaton) and onwards to Derby via a longer-distance cycle expressway. These investments will improve active travel connectivity to the Boots site, which has Enterprise Zone status and plans to deliver 675 new homes and over 80,000sqm of commercial space.
- **Derby and Nottingham city centre regeneration projects** which include privately-funded Broadmarsh shopping centre improvements (currently underway) in Nottingham, Local Growth Fund investments in Derby which have enabled the City Council to acquire and promote poor quality buildings in the city centre, and the Nottingham Southside regeneration works currently anchored by the Unity Square development which will house 4,000 HMRC staff when it opens in 2020/21. Our proposed TCF2 investments in city centre public realm and walk/cycle links will make it easier for pedestrians, cyclists, and public transport users to access these new developments in a safe and attractive environment.

4.125 These planned and completed major infrastructure works knit tightly together with our TCF Tranche 2 scheme proposals for Derby and Nottingham. They reflect a comprehensive network of improvements to both the quality of our cities, and their transport networks.

5. Economic Case: Value for Money

5.1 This section presents the Economic Case for funding our Transforming Cities Fund programme. It sets out a brief description of the methodology and assumptions used to evaluate the proposal, which are detailed further in Appendix B. It also comprises summary economic appraisal values for the Low, Medium and High Packages.

Overview

5.2 In overview, the robust economic appraisal work undertaken in relation to our TCF programme indicates that the Low, Medium and High packages achieve Benefit:Cost Ratios of between 2.11 and 2.72; reflecting High Value investments under DfT's Value for Money framework.

5.3 The calculated value of Net Present Benefits scales broadly in-line with programmed expenditure for each option, albeit with the High investment package offering the best return to public accounts owing to:

- The inclusion of more ambitious public transport improvements, such as multiple new Park & Ride sites and a new bus-based Rapid Transit spine through the centre of Derby – which combine to result in higher levels of mode shift away from private car use, thereby achieving greater decongestion and journey time savings for transport users.
- The delivery of more extensive walking and cycle network improvements that are forecast to build on prior investments delivered across Derby and Nottingham to further accelerate current levels of uptake of walking and cycling as everyday modes of travel.
- The inclusion of a number of necessary, but largely 'hidden', transport improvements – such as to real time information and contactless/smarter fare payment systems – within the Medium investment package, which are hard to quantifiably appraise.

5.4 On this basis we can be reasonably confident that any changes in the scale of funding which DfT may seek to award our Councils, within the parameters of the Themes and scheme components presented in this SOBC, would still be likely to deliver a High Value return on investment.

Methodology and key assumptions

5.5 The methodology applied to conduct the economic appraisal utilised a suite of established modelling tools that accord with DfT's published WebTAG guidance:

- The validated **Derby and Nottingham Strategic Transport Model**, was used to test the potential:
  - Impact of physical public transport improvements to the existing network – notably bus priority improvements achieved through new/extended bus lanes, traffic signal priority for buses and linked traffic signals to benefit all traffic.
  - Disbenefits to car travellers and other highway users in the few locations where roadspace is proposed to be reallocated in order to afford greater priority to public and sustainable transport routes.
  - Impact of new and extended public transport services, which will be supported through the provision of infrastructure under the TCF2 programme – notably new and extended Park & Ride sites, a new rapid transit link in the centre of Derby, and the facilitation of new Demand Responsive Transport Services in locations where it is hard to provide conventional public transport services at the times of day that people need them.
  - Diversionary impacts on motorised travel modes arising from forecast growth in cycling trips (as estimated using DfT's Active Mode Appraisal Toolkit, and based on local and national precedents) and mode-shift away from private cars, public transport and taxi options.
- The **Valuing Urban Realm Toolkit (VURT)**, developed by Transport for London, was used to forecast the impact on pedestrian flows, dwell times in key city locations, and changes in amenity benefits associated with significantly improved public realm in both Derby and Nottingham. A spreadsheet model was constructed to quantify the impacts of individual public realm improvements in each city.
- **DfT's Active Mode Appraisal Toolkit (AMAT)**, based on assumed changes in cycling activity levels derived from national/international evidence of behavioural responses (shared by DfT through the TCF co-development process) and local cycle count trend data (collected by Derby and Nottingham City Councils to monitor the impacts of their recent cycle network investments), to forecast the impact of urban and inter-urban cycle route improvements focused on key growth locations in the Derby and Nottingham area. AMAT spreadsheets were completed for each individual scheme/small groups of schemes in order to estimate the

benefits associated with cycle network improvements in locations targeted at enhancing active travel access to new housing and employment growth sites. In order to avoid double counting with the Strategic Model, the marginal external cost (MEC) benefits that accrue from the effects of mode shift to cycling are not included in the AMAT appraisal, with only the health and journey quality impacts counted towards the reported present value benefits (PVBs). An estimate of the change in cycle trips resulting from the improvements to infrastructure in each of the Low, Medium and High investment packages was provided to the strategic modelling team, with WebTAG diversion factors applied to estimate the reductions in private car, taxi and public transport trips. These values were subsequently applied to the base matrices for each model scenario, prior to public transport and highway assignment by the model, in order to ensure that forecast mode-shift impacts linked to cycling investments were accounted for in the strategic model's highway and public transport forecasts for 2023 (scheme opening) and 2043 (future) benefit years[23].

5.6 The above modelling tools captured the majority of quantifiable and monetary benefits associated with each investment package included within our TCF2 programme. In addition, a 'bespoke' sets of models were developed, using spreadsheets, to capture the smaller quantum of benefits that conventional transport models and urban realm/active mode appraisals cannot estimate. These include:

- Passenger amenity benefits associated with enhanced and extended Real Time Information (RTI) services and improved bus stops. These were calculated using reductions in generalised minutes perceived as a result of improved information facilities (as recommended in TAG unit A4.1 and values from WebTAG Data Book Table M3.2.1). In order to be conservative, growth in public transport usage was assumed to be low over the appraisal period.
- The benefits derived from the expansion of existing NET Tram Park & Ride sites at Phoenix Park and Hucknall, which have been appraised by estimating changes in marginal external costs (MEC) and operator revenue benefits associated with meeting the potential number of tram-based Park & Ride (P&R) trips that were forecast in the 2023 and 2043 Reference Case Strategic Model runs. A spreadsheet model was developed for benefits estimation, because the Strategic Model does not account for parking capacity at P&R facilities so essentially over-estimates the number of trips that can feasibly be accommodated from them through the course

[23] Also, to avoid double counting with the urban realm appraisal toolkit (VURT) – the pedestrian journey ambience of the AMAT toolkit has not been employed. Further details of the methodology and assumptions applied are presented in Appendix B.

of a typical day (as the car parks become fully occupied). Measures have been taken to avoid any potential double counting, with the spreadsheet model reflecting the valuation of increased tram-based park & ride trips that can be accommodated as a result of expanding the car parks at the NET tram stops. These benefits are otherwise largely assumed in the Strategic Model's reference case and therefore not fully accounted for in 'With Scheme' scenarios modelled when compared to the 'Without Scheme' counterfactual.

- The monetised benefits of reduced greenhouse gases as a result of extending the Derby and Nottingham Go Ultra Low EV chargepoint network. These were monetised and presented using DfT's Greenhouse Gas Workbook (TAG Unit A3) and required us to make assumptions about local levels of EV use and average journey lengths (derived from the National Travel Survey, 2018), and the number of charge cycles per-day that new EV chargepoints will accommodate.
- Similar to the cycle infrastructure schemes, the public cycle/e-bike hire system was appraised using the Active Model Appraisal Toolkit (AMAT). However, we first had to estimate the number of cycle/e-bike trips that could reasonably be anticipated based on typical numbers of hires-per-day-per-bike, alongside evidence from CoMoUK research that has revealed higher average trip lengths and lower levels of protective health benefits associated with e-bike use. We assumed no change in journey quality (where some trips are likely to utilise local cycle networks being improved through the TCF programme) and a short 5-year appraisal period – reflecting the precedent for such schemes to be vulnerable to unexpected cost increases and start-up business models that have not been widely tested.

5.7 Full details of the appraisal methodologies used, including assumptions made and prior evidence and data used, are included in Appendix B to this SOBC. Table 5-1 summarises the appraisal methodologies used, appraisal periods applied, and the level of benefits derived from each if the different types of schemes that make up our TCF programme.

Table 5-1: Summary of economic appraisal - Estimation of benefits

Scheme types	Methodology	Appraisal period (yrs)	Source of benefits	Level of benefits
Public transport	Nottingham and Derby Strategic Model	20	Economic efficiency, greenhouse gases, wider public finances	High
RTI / bus shelter & interchange improvements	Spreadsheet (TAG unit A4.1)	20	Value-of-time priced reduction in generalised minutes per trip	Moderate - High
Cycle infrastructure	Active Mode Appraisal Toolkit (TAG unit A5.1)	30	Health and journey quality	High
Public realm	Valuing Urban Real Toolkit (VURT, TfL, 2016)	20	Pedestrian ambience benefits	Moderate
Park & Ride	Spreadsheet model	30	MEC and operator revenue	Moderate – Low
e-bikes	Active Mode Appraisal Toolkit (TAG unit A5.1)	5	MEC and health benefits	Moderate – Low
Electric vehicle charging	DfT Greenhouse Gas Workbook (TAG A3)	10	Greenhouse gas reduction	Low

Investment, Operational and Maintenance Costs

5.8 All (base) costs have been evaluated at SOBC level and are consistent with the values presented in the Financial Case. In line with the guidance in TAG Unit A1.2, the base costs have been adjusted in our economic appraisal so as to allow for:

- Real cost changes over time – notably because expected inflation costs for construction and delivery of public sector projects are forecast to rise higher than CPI/RPI over the TCF programme period. These are priced into the values presented in our Financial Case, so were not added onto those used in the economic appraisal.
- A quantified risk assessment (QRA), the analysis underlying which is presented in detail within the provided Financial Case spreadsheet (Appendix G), but can be summarised as comprising 5.8% of base costs in the Low Package, 6.0% of base

costs in the Medium Package and 6.4% of base costs in the High Package. While these are also considered to be included within the scheme costs presented within the Financial Case, we elected to double-count them in the economic appraisal – effectively improving the robustness of the appraisal and subsequent value for money assessment.

- Optimism bias, applied at 44% all schemes, which are considered to be 'road' schemes which are currently at the SOBC level.
- Operational and maintenance costs, for which an allocation of 1% of the 'final' investment costs (including the QRA adjusted costs and OB uplift increments) has been applied on a per annum basis for all schemes comprising each package over the appraisal period. This value is not included within the Financial Case, but will be underwritten by the Councils as the new infrastructure funded through the TCF programme is absorbed into their capital assets and ongoing LTP maintenance regimes.

5.9 Table 5-2 presents a summary of all net present cost components considered within the Economic Case. Values presented in bold are taken forward for cost:benefit appraisal.

Table 5-2: Summary of investment costs and Operational & Maintenance costs (Net Present Values, 2010 prices)

Package	Investment Costs			Operating and Maintenance
	Base Costs	Inc. QRA	Inc. (OB)	
Low	£95,163,630	£100,710,793	**£145,023,542**	**£24,060,943**
Medium	£123,367,779	£130,733,123	**£188,255,697**	**£31,165,126**
High	£149,812,141	£159,383,906	**£229,512,825**	**£37,310,036**

'Low' investment package: Economic appraisal

This package is forecast to provide **£330m of overall transport benefits** from different sources (all monetary values are net present at 2010 prices), including:

£208m of valued journey time savings arising from bus priority improvements to key intra- and inter-urban corridors as well as improvements to bus stops, station interchanges and RTI on major corridors in both cities.

4,320 tonnes saving of CO2e through the addition of 115 extra EV charging points to the local Go Ultra Low network.

1,400 further Park and Ride spaces allowing more drivers to transfer to bus or tram for the final legs of their journeys into Derby and Nottingham city centres and key employment growth locations.

5,800 additional cycle trips per year resulting from targeted improvements to intra- and inter-urban cycle routes across the Derby and Nottingham area that will deliver **28km of new cycling infrastructure** for new and existing cyclists.

3.1km of upgraded public realm in Derby and Nottingham city centres; improving the quality of townscape in both cities, contributing to attractive and efficient transport interchange 'Hubs' and complementing city centre regeneration projects that have been separately forecast to add over £4bn of GVA to the local economy.

5.10 Table 5-3 presents the value for money statement for the 'Low' package appraisal. Overall, the 'Low' package produces £330.8 million of 2010-price Present Value of Benefits (PVB) - this is comprised of PVB £343.8 million derived from the transport interventions and a PVB of minus £13.4 million from private sector contributions towards investment costs.

5.11 The Present Value of Costs (PVC) is estimated to be £155.6 million at 2010 prices. This is comprised of £131.6 million from investment costs borne by central (£123.4 million) and local government (£8.1 million) and a PVC of £24.1 million derived from operational and maintenance costs borne by local government.

5.12 Overall, it is estimated that the 'Low' package produces a Net Present Value (NPV) of £174.7 million and a Benefit to Cost Ratio (BCR) of 2.12. This is defined as 'high' in respect of DfT's Value for Money (VfM) criteria.

Table 5-3: Low package - Economic appraisal summary results

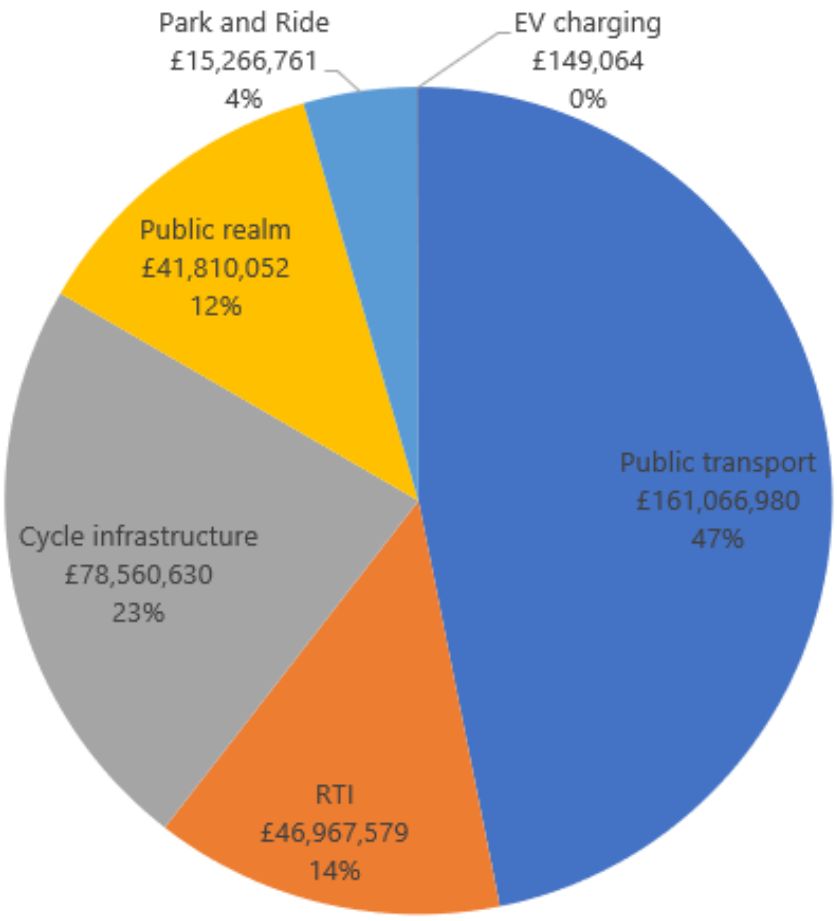
Economic Indicator	Value (2010 prices)
Present Value of Benefits (PVB)	£330,383,737
Present Value of Costs (PVC)	£155,630,773
Net Present Value	£174,752,965
Benefit Cost Ratio (BCR	**2.12**
VfM Category	**High**

5.13 The main four sources of benefits are derived from a) economic efficiency of commuters (PVB £139 million), b) other travellers (PVB £62 million), c) physical activity (PVB £72 million), and d) journey quality (PVB £48 million). In total, these four categories form over 95% of the total benefits of the Low Package. More details about these sources of benefits is included in Table 5-4.

Table 5-4: Summary of Present Value of Benefits (Low package, £m, 2010 prices)

Noise (£m)	£0.04
Local Air Quality	£0.02
Greenhouse Gases	£2.76
Journey Quality	£48.01
Physical Activity	£72.36
Accidents	£0.66
Economic Efficiency: Consumer Users (Commuting)	£139.06
Economic Efficiency: Consumer Users (Other)	£62.27
Economic Efficiency: Business Users and Providers	£6.95
Wider Public Finances (Indirect Taxation Revenues)	-£1.76
Present Value of Benefits (2010 prices, millions)	**£330.38**

Figure 5-1: Low package sources of estimated benefits by scheme type



'Medium' package: Economic appraisal

This package is forecast to provide **£427m of overall transport benefits** from different sources (all monetary values are net present at 2010 prices), including:

£263m of valued journey time savings arising from bus priority improvements to key intra- and inter-urban corridors as well as improvements to bus stops, station interchanges and RTI on major corridors in both cities.

6,195 tonnes saving of CO2e through the addition of 165 extra EV charging points to the local Go Ultra Low network.

2,150 additional Park and Ride spaces allowing more drivers to transfer to bus or tram for the final legs of their journeys into Derby and Nottingham city centres and key employment growth locations.

7,171 additional cycle trips per year resulting from targeted improvements to intra- and inter-urban cycle routes across the Derby and Nottingham area that will deliver **65km of new cycling infrastructure** for new and existing cyclists.

625 new publicly available cycles/e-bikes, delivered as part of a Derby and Nottingham-wide bikeshare system which is expected to further encourage uptake of everyday cycle trips in Derby and Nottingham

4.0 km of upgraded public realm in Derby and Nottingham city centres; improving the quality of townscape in both cities, contributing to attractive and efficient transport interchange 'Hubs' and complementing city centre regeneration projects that have been separately forecast to add over £4bn of GVA to the local economy.

5.14 The table below presents the value for money statement for the 'Medium' package appraisal. Overall, the 'Medium' package produces £427.9 million of Present Value of Benefits (PVB) at 2010 prices. This is comprised of PVB £444.1 million derived from the proposed transport interventions, and a PVB of minus £16.4 million from private sector contributions towards investment costs.

5.15 The Present Value of Costs (PVC) is calculated to be £203.0 million at 2010 prices. This is comprised of PVC £171.9 million from investment costs borne by central (£161.3 million) and local government (£10.6 million), and a PVC of £31.2 million derived from operational and maintenance costs borne by local government.

5.16 Overall, it is estimated that the 'Medium' package produces a Net Present Value (NPV) of £224.9 million and a Benefit to Cost Ratio (BCR) of 2.11 and defined as 'high' in respect of Value for Money (VfM) criteria.

Table 5-5: Medium package - Economic appraisal summary results

Economic Indicator	Value (2010 prices)
Present Value of Benefits (PVB)	£427,885,802
Present Value of Costs (PVC)	£203,030,638
Net Present Value	£224,855,164
Benefit Cost Ratio (BCR	**2.11**
VfM Category	**High**

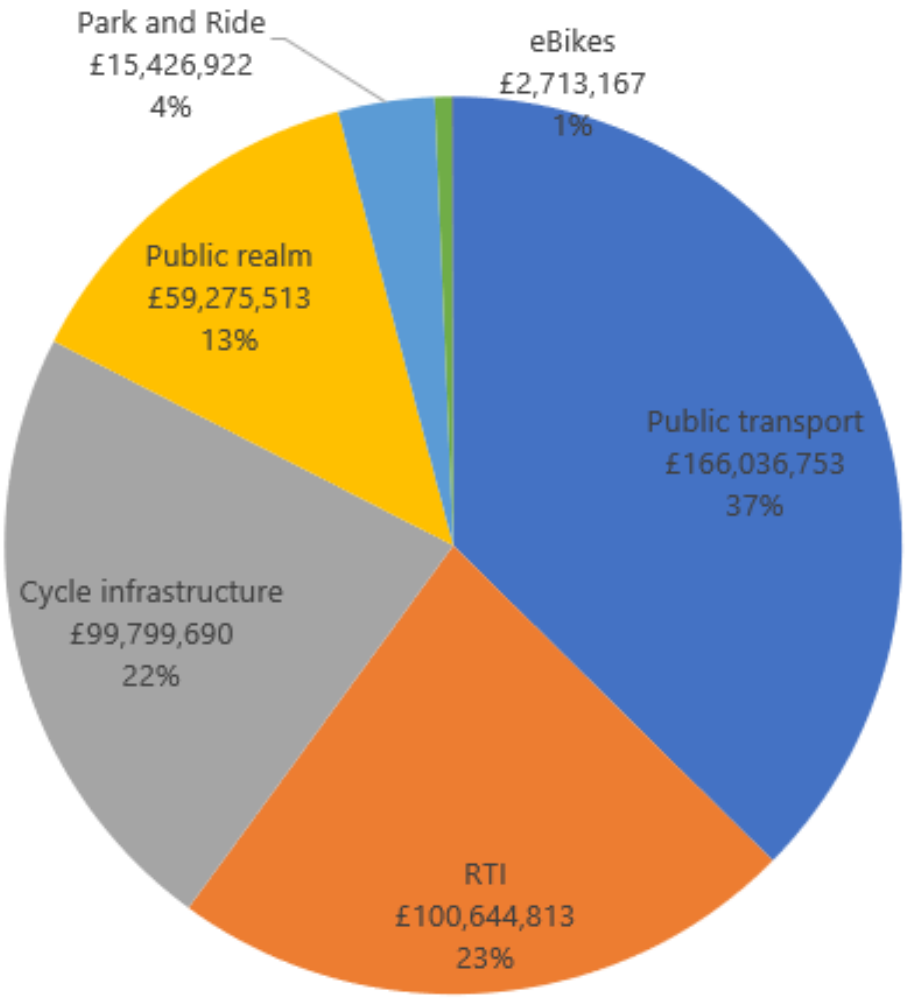
5.17 The main four sources of benefits are derived from a) economic efficiency of commuters (PVB £199 million), b) other travellers (PVB £65 million), c) physical activity (PVB £90 million), and d) journey quality (PVB £71 million). In total, these four categories form over 95% of the total benefits of the Medium package.

5.18 In terms of interventions, the following four types of scheme provide over 95% of the benefits: public transport interventions (PVB £166 million), RTI (PVB £101 million), cycle ways (PVB £100 million), and Public Realm (PVB £59 million).

Table 5-6: Summary of Present Value of Benefits (Medium Package)

Noise (£m)	£0.05
Local Air Quality	£0.02
Greenhouse Gases	£2.72
Journey Quality	£70.78
Physical Activity	£90.18
Accidents	£0.77
Economic Efficiency: Consumer Users (Commuting)	£198.77
Economic Efficiency: Consumer Users (Other)	£64.59
Economic Efficiency: Business Users and Providers	£0.25
Wider Public Finances (Indirect Taxation Revenues)	-£0.26
Present Value of Benefits (2010 prices, millions)	**£427.89**

Figure 5-2: Medium package sources of estimated benefits by scheme type



'High' package: Economic appraisal

This package is forecast to provide **£667m of overall transport benefits** from different sources (all monetary values are net present at 2010 prices), including:

£471m of valued journey time savings arising from bus priority improvements to key intra- and inter-urban corridors as well as improvements to bus stops, station interchanges and RTI on major corridors in both cities. Significant extension of the proposed Derby eRT bus-based rapid transit route, into the Pride Park employment area and through to the Cathedral Quarter regeneration area, is a key factor in the significant increase in valued journey time savings in the High package.

8,085 tonnes saving of CO2e through the addition of 215 extra EV charging points to the local Go Ultra Low network.

2,590 additional Park and Ride spaces allowing more drivers to transfer to bus or tram for the final legs of their journeys into Derby and Nottingham city centres and key employment growth locations.

9,118 additional cycle trips per year resulting from targeted improvements to intra- and inter-urban cycle routes across the Derby and Nottingham area that will deliver 77**km of new cycling infrastructure** for new and existing cyclists.

1,250 new publicly available e-bikes, delivered as part of a Derby and Nottingham-wide bikeshare system which is expected to further encourage uptake of everyday cycle trips in Derby and Nottingham

4.9 km of upgraded public realm in Derby and Nottingham city centres; improving the quality of townscape in both cities, contributing to attractive and efficient transport interchange 'Hubs' and complementing city centre regeneration projects that have been separately forecast to add over £4bn of GVA to the local economy.

5.19 Table 5-7 presents the value for money statement for the 'High' package appraisal. Overall, the 'High' package produces £667.4 million of Present Value of Benefits (PVB) at 2010 prices. This is comprised of PVB £689.0 million derived from the proposed transport interventions, and a PVB of minus £21.6 million from private sector contributions towards investment costs.

5.20 The Present Value of Costs (PVC) is calculated to be £245.2 million. This is comprised of PVC £207.8 million from investment costs borne by central (£199.1 million) and local

government (£8.7 million), and a PVC of £37.3 million derived from operational and maintenance costs borne by the local government.

5.21 Overall it is estimated that the TCF high case produces a Net Present Value (NPV) of £422.2 million and a Benefit to Cost Ratio (BCR) of 2.72 and defined as 'high category' in respect to Value for Money (VfM) criteria.

Table 5-7: High package - Economic appraisal summary results

Economic Indicator	Value (2010 prices)
Present Value of Benefits (PVB)	£667,364,682
Present Value of Costs (PVC)	£245,158,529
Net Present Value	£422,206,152
Benefit Cost Ratio (BCR	**2.72**
VfM Category	**High**

5.22 The main five sources of benefits are derived from

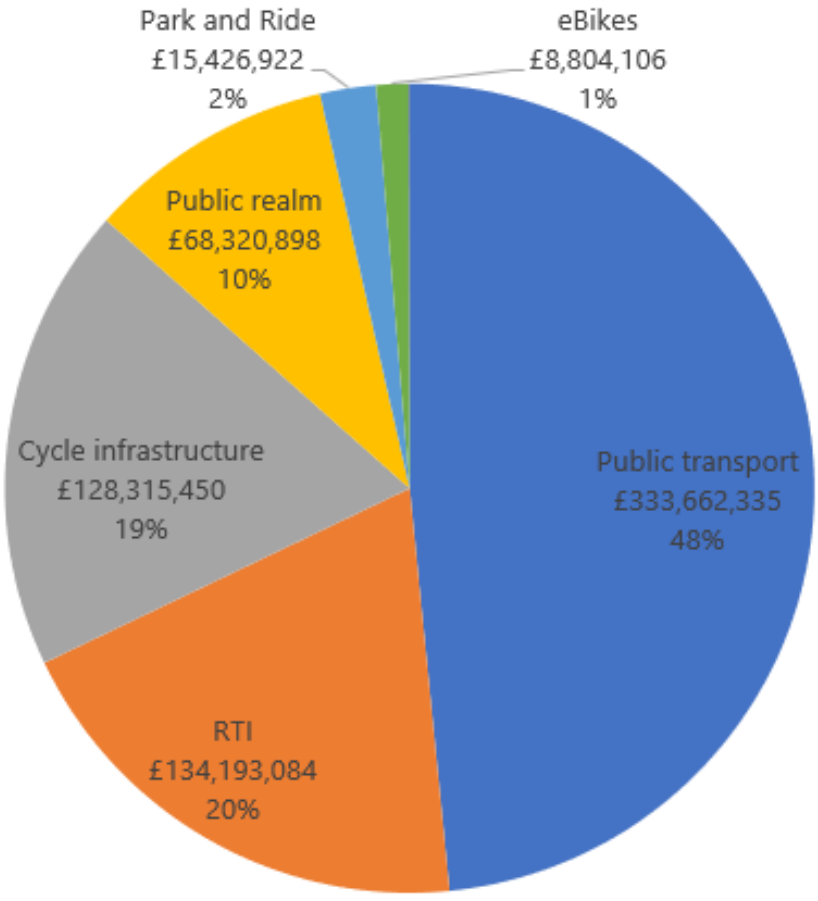
a) economic efficiency of commuters (PVB £261 million),
b) other travellers (PVB £112 million),
c) physical activity (PVB £119 million),
d) journey quality (PVB £83 million),
e) and, in contrast to the low and medium packages, the high package produces an additional pillar of benefits from the economic efficiency of business users and providers (£98 million).

5.23 In terms of interventions, the following four schemes provide over 95% of the benefits: public transport interventions (PVB £334 million), RTI (PVB £134 million), cycle ways (PVB £128 million), and Public Realm (PVB £68 million).

Table 5-8: Summary of Present Value of Benefits (High Package)

Noise	£0.07
Local Air Quality	£0.04
Greenhouse Gases	£4.31
Journey Quality	£83.49
Physical Activity	£119.04
Accidents	£1.03
Economic Efficiency: Consumer Users (Commuting)	£260.82
Economic Efficiency: Consumer Users (Other)	£112.23
Economic Efficiency: Business Users and Providers	£98.08
Wider Public Finances (Indirect Taxation Revenues)	-£11.74
Present Value of Benefits (2010 prices, millions)	**£667.36**

Figure 5-3: High package sources of estimated benefit by scheme type



Value for Money assessment

5.24 Below is a summary of the economic case for each of the three TCF Packages (Low, Medium and High Packages). It confirms that all packages produce 'high' BCR scores according to Value for Money guidance. However, the High package produces the greatest magnitude of benefits in relation to costs, with a BCR of 2.72, and a Net Present Value of benefits of £0.42 billion.

5.25 The reason the 'High' package produces improved benefits (compared to the 'Low' and 'Medium' packages) is that the higher level of investment in public transport interventions – notably eRT and bus partnership/Park & Ride in Derby, and extensive Park & Ride/bus priority improvements in Nottingham – accelerate the benefits from economic efficiency of business users and providers. Specifically, in the 'High' package, this source of benefits is approximately PVB £100 million greater than for the 'Medium' package.

Table 5-9: Economic Appraisal results (2010 Prices)

Economic Indicator	Low Package	Medium Package	High Package
Present Value of Benefits (PVB)	£330,383,737	£427,885,802	£667,364,682
Present Value of Costs (PVC)	£155,630,773	£203,030,638	£245,158,529
Net Present Value (NPV)	£174,752,965	£224,855,164	£422,206,152
Benefit Cost Ratio (BCR)	**2.12**	**2.11**	**2.72**
VfM category	**High**	**High**	**High**

5.26 Tables showing the economic efficiency of the transport system (TEE), Analysis of Monetised Costs and Benefits (AMCB), Public Accounts (PA) impacts, and Appraisal Summary Tables (ASTs) have been compiled for each of the proposal funding levels and can be found in Appendix C.

Un-appraised benefits

5.27 A number of transport benefits have not been appraised monetarily because of their complexity or lack of post-hoc documentary evidence (due to the high level of innovation of the schemes, specific local context etc). These include:

- **Inter-urban bus ticketing improvements** to the Robin Hood card system, contactless ticketing and EMV ticket machines (Biii). These schemes, totalling £3.01m out of £8.6m in the 'High' funding proposal, include improvements to the Robin Hood card system handles payments for around 9 million[24] bus and tram trips in the Nottingham area annually. Schemes would include improving back-office systems, on-street top-up machine options available, and extension of the system to Derby, greatly improving the reach of the system and capturing some of the 7.5 million public transport trips currently still made in Nottingham using the most expensive cash payment products. The move to simpler more accessible smart and contactless payment options will remove a further barrier to access of best value fares, driven by digital fare capping. This directly complements Future Mobility Zone (FMZ) proposals to incrementally build a 'public MaaS' system in Derby and Nottingham to complement the cities' strong public transport networks. However, this suite of schemes was deemed too difficult to appraise robustly, due to the limited evidence available regarding innovative cashless ticketing solutions.
- **Workplace travel grants** supporting schemes encouraging active and cleaner travel in both Derby and Nottingham. These grants, totalling £1.2m for Nottingham and £150k for Derby, fund a number of specific interventions for local businesses of different sizes. For example, under recent existing funding in Nottingham, to date the funding has supported the introduction of 125 workplace charging points; 30 cycle shelters; 57 cycle storage lockers; and 20 pool e-bikes. The Nottingham project to date has also attracted £125,000 of private sector financial match funding. Due to the diverse nature of schemes funded through these grants, it was however deemed too difficult to appraise the grant scheme using the level of detail that would be required for an accurate estimation of value for money.

[24] Source: Robin Hood partnership ticketing data and DfT mode data by city.

Sensitivity testing

5.28 Due to the interlocking nature of the four different modelling approaches used (see p. 124), it was not possible to perform extensive sensitivity testing against the different schemes. This is in part because a large proportion of the estimated benefit was derived from benefits to the public transport system, calculated using the Nottingham and Derby Strategic Model, for which multiple model runs were not feasible within the TCF co-development timeframes.

Key risks and uncertainties

5.29 Table 8-3 summarises the key envisaged risks and uncertainties, which were priced into the economic appraisal through a Quantified Risk Assessment (QRA). The priced risks and allowances are documented in the Financial Case spreadsheet included in Appendix G to this SOBC.

5.30 The key risks and uncertainties, which were priced specifically within the QRA include:

- Unforeseen ground conditions across construction sites – e.g. for public realm, cycle route and bus lane improvements. No ground condition surveys have been commissioned at this stage, but Officers have a reasonable working knowledge of local conditions based on previous projects of similar nature.
- Co-delivery delays linked to ancillary regeneration projects that are currently being completed in both Derby and Nottingham city centres.
- Works being undertaken outside of the Derby and Nottingham City Council administrative areas (including the cycle expressways) where there will be reliance upon third party providers to deliver contracted engineering works.
- Potential for the escalation of operational costs – specifically linked to the cycle/e-bike hire programme – to become unsupportable, resulting in the public bike hire system not operating for at least five years.
- Technological difficulties linked to RTI, contactless and smart payment / fares / ticketing, and DRT brokerage systems, which could extend delivery timeframes and costs.
- Compatibility/interoperability of traffic signal priority systems across the Derby and Nottingham area – a risk that is already largely mitigated through previous shared investments.
- Changes in the national/local political landscape which affect local priorities and approvals for the programme of TCF investments we have developed.

Distributional analysis of forecast benefits

5.31 The anticipated benefits from our TCF2 programme will accrue primarily to transport network users in the Derby and Nottingham area. The exact distribution of benefits varies slightly between themes:

- **Theme A**: Users of the main rail and bus stations in Derby and Nottingham, who are making journeys to employment, retail, cultural and leisure-related opportunities in the city centres. People cycling into the city centre, and those travelling from the rail and bus stations to other destinations will also benefit.
- **Theme B**: All transport users and residents who travel or live along corridors linking Derby, Nottingham and East Midlands Airport.
- **Themes C & D**: All transport users and residents who travel or live along the corridors targeted for investment in Derby and Nottingham. Local employers and housing/commercial property developers with sites along these corridors are also expected to benefit.

5.32 Across the four themes, it is anticipated that there will be a largely even spread of social impacts. As well as local transport system users, there is expected to be a modest air quality improvement associated with a net reduction in CO_2e emissions that is linked to mode shift to more sustainable public transport and active travel modes. Other environmental impacts are examined in the following section.

Theme A impacts (Derby and Nottingham)

5.33 Due to its broad mix of scheme proposals, Theme A is anticipated to benefit a wide range of social groups, with the improvements aimed at the connectivity of the city centres of Derby and Nottingham with their respective main rail and bus stations.

- The journey quality of, in particular, **cyclists and pedestrians,** travelling to and from the stations is expected to improve significantly, given the proposed off-road cycle lanes and public realm improvements. The fully segregated cycle routes will not only help to reduce journey times for commuters travelling to and from the station, they will also improve the safety of cyclists' journeys – away from motorised traffic – but also in improved environments with wider lanes and additional lighting. This should also help to reduce conflicts between pedestrians, cyclists and vehicular traffic – delivering a safety benefit to **all road users** in city centre locations.
- With public realm improvements proposed for both Nottingham and Derby's city centres, **pedestrians** will also benefit from safer and less cluttered journeys

between the stations and city centres, benefiting residents from across the Derby and Nottingham area and visitors alike. These improvements are predicted to lead to increased levels of physical activity, with cycle ridership and city centre footfall forecast to increase over the lifetime of the schemes.

- The delivery of enhanced public realm is expected to create a more inclusive environment in both Derby and Nottingham city centres, with a wider extent of even and level pedestrian surfaces, and enhanced tactile surfaces at crossings and in other relevant locations. This will particularly benefit **older and disabled people**, those travelling with luggage/shopping, and people making journeys into or through the city centre with small children.
- As noted in the Valuing Urban Realm Toolkit assessment that supports our economic appraisal, longer pedestrian and visitor dwell times are expected in our city centres, and at key attractions such as Nottingham Castle and our main shopping precincts. Consequently, we anticipate these schemes could deliver wider economic benefits for **retailers and city centre landowners** – as public realm and active travel interventions help to reinvigorate our high streets.
- In addition to improving journey quality, real-time information (RTI) upgrades at Derby bus station and through in-street touchscreen 'totems' will ensure **commuter journeys** are more efficient and reliable.

Theme B impacts (Derby, Nottingham, East Mids. Airport)

5.34 Theme B also comprises a range of different types of intervention, encompassing cycle expressways and hubs (including e-bike hire schemes), bus priority extensions, upgrades and extensions to real-time passenger information systems (RTI), and an expansion of the D2N2 EV charging network. These schemes focus on improving public transport and cycling links between the East Midlands Airport and Gateway growth area to both Derby and Nottingham.

- Beneficiaries are expected to be drawn from a broad social and geographical reach, with journey quality expected to improve not only within the two cities, but also for trips made between them. Whilst **higher-income groups** are expected to benefit to a greater extent from the expansion of the EV charging network, other schemes are not expected to bias towards any income groups. Bus priority and Demand Responsive Transport service improvements may particularly benefit **lower-income groups** and **workers** at East Midlands Airport, for whom conventional public transport services are not feasible due to shift-working practices and hours of operation.

- Improved reliability of journeys by **bus users** will be achieved through wider delivery of RTI and bus priority measures on approach to junctions with traffic signal priority. The resulting journey time savings and social value benefits will be focused upon existing bus users along the corridors highlighted in Theme B, with some wider benefit possible for all transport users along some bus routes – in the event these improvements encourage people to switch modes from private cars. Residents in Kegworth, Sutton Bonington, south west Nottingham and south east Derby are expected to benefit specifically from the proposed Demand Responsive Transport brokerage system – where the social and journey time benefits of extended public transport routes and operating hours will be experienced.
- The expanded EV charging network will directly benefit **EV owners** using these sites to charge-up- enabling them greater flexibility and convenience through a higher level of choice when making emission-free journeys. They will also deliver indirect air quality benefits to **all travellers** in the Derby and Nottingham area (as they help to accelerate the switch from internal combustion engine vehicles to ULEVs).
- In addition to the cycle expressways making cycling trips safer, the public e-bike hire system is expected to improve the accessibility and affordability of cycle travel. Health benefits will be experienced by users of the system, with greater travel distances now possible by bike for some. Indirect benefits are expected to accrue to **all transport users** in Derby and Nottingham, in the form of reduced traffic congestion and marginally improved air quality arising from lower emissions resulting from the modest reduction in car trips that will result from mode-shift to e-bikes for some trips.

Theme C impacts (in Nottingham)

5.35 This Theme's scheme components are focused predominantly upon areas of Nottingham that are in the lowest two Index of Multiple Deprivation quintiles. These are identified as Urban Growth Corridors; situated in the north, north west and east of the city. The schemes consist of junction and linked traffic signal priority improvements, bus lanes, RTI installations, Tram Park and Ride car park expansions, a new bus-based Park and Ride, safe and segregated cycle lanes, pedestrian priority routes and sustainable workplace travel capital grants for new facilities.

- These interventions are targeted spatially to improve the journey quality, safety, reliability and accessibility of transport users who are likely to be in lower socio-economic groups across Nottingham. For instance, the car park expansions of the

Tram Park and Ride stops will help to improve the journey quality and reliability of all transport users along the A610 and A611 growth corridors by reducing traffic congestion on key routes into Nottingham (through the interception of higher numbers of vehicles), thereby reducing localised traffic-related emissions and improving air quality for **local residents, cyclists and pedestrians**. These improvements will be further enhanced by new RTI displays, traffic signal and junction upgrades and new bus lanes along the growth corridors. Better public transport journey time reliability and quality of experience is forecast to encourage some travel mode-shift and, in turn, further reduce traffic congestion along these routes. A similar impact is expected along the A60 corridor, to the south of the proposed Leapool Park & Ride.

- Extensions to key cross-city cycle routes, coupled with the delivery of new 'greenways' in the north of the city will fill important missing cycle route network links, notably, close to City Hospital on the ring road. These are expected to confer road safety and public health benefits on **people cycling to work** in Nottingham, and notably key workers at the hospital site.
- An indirect benefit linked to the delivery of these growth corridors is the complementary delivery of new homes and jobs at allocated Local Plan sites that are nearby. In particular the delivery of homes at the Boots Enterprise Zone and Victoria Parkway – at each end of the extended southern growth corridor – will generate economic benefits for the city in the form of jobs during construction, and the provision of greatly needed affordable housing for **key workers**. Adjacent employment land will also accommodate new jobs – delivering a secondary Gross Value-Added boost to the local economy.
- Grants to help local businesses improve their cycle parking, shower, changing and EV facilities will directly benefit employees of the firms in Nottingham that apply for funding (which are yet to be identified). Indirect benefits will accrue to **all transport network users where** this funding results in changes in commuter travel behaviours, public health – where uptake in cycling is an outcome – and also to the wider economy – through the match-funded purchase of facilities-related equipment.

Theme D impacts (in Derby)

5.36 Complementing Theme C, the Theme D investment components also target locations in Derby with the highest levels of multiple deprivation. These run along a north-south axis through the centre of Derby, with direct connections to local employment being a

key concern. As in Nottingham, our proposed interventions are aimed at improving both public and sustainable transport routes to new employment and residential areas. They also deliver significant new Park & Ride facilities and a rapid transit link between Pride Park (home to 10,000 employees, Derby County Football Club and the Derby Arena) and city centre transport interchanges and residential areas. In particular, weekday and matchday traffic congestion around the Pride Park area are expected to improve considerably – helping local trading conditions for retailers and minimising delays to all transport network users, including commuters making everyday trips to work or on employer business.

- Similar benefits are expected to accrue as in Theme C, with public transport journey time reductions, service reliability improvements and service quality upgrades directly benefitting users of local bus services, the new eRT service and Park & Ride users. Other travellers are expected to benefit from reduced traffic congestion – primarily along the A61, A6/London Road, A52 and the A516 highway corridors into Derby city centre. Forecast shifts in travel demand from car to public transport trips should achieve a net reduction in emissions that positively impacts upon air quality along these routes, as well as decongesting intra-urban roads **for all travellers**.
- The new eRT service, proposed Demand Responsive Transport link to Infinity Park, and more frequent bus services along Derby's Partnership Corridors are expected to improve access to employment for **lower income households** and **communities with higher Index of Multiple Deprivation scores**. Forecast uptake in these services will generate social value that arises from the broadened travel horizons afforded to people. They are also expected to generate additional revenues for local public transport operators.
- The significant improvements to traffic-free North-South and East-West cycle routes are expected to result in greater widespread uptake in active travel – and notably to/from new housing and employment site developments close to the routes. The protective health benefits will accrue particularly to **new cyclists** in these locations; with wider road safety, traffic decongestion and air quality benefits distributed along the spatial alignment of these routes. Increased travel horizons for people in lower income areas may help to broaden travel horizons and support access to higher value employment opportunities.
- As with the Nottingham-focused Theme C components, grants to help local businesses improve sustainable travel facilities will directly benefit **employees** of the firms that apply for funding, with indirect traffic decongestion and air quality benefits likely to be focused around the recipient locations of the grant funding.

Environmental impacts

5.37 This section provides a qualitative overview of the types of impact expected on the natural environment that could be expected if the proposals were confirmed. Full qualitative assessment of particular measures (following WebTAG appraisal guidance) is available in the attached appendices.

Theme A

5.38 Given the numerous proposed cycle lanes, complemented by upgraded bus RTI and priority routes, levels of noise and air pollution are predicted to significantly decrease due to an expected modal shift from internal combustion engine (ICE) cars to these cleaner forms of transport, helping to reduce congestion and air pollution on roads.

5.39 The townscapes of both Nottingham and Derby will be significantly enhanced under the proposed schemes under Package A, particularly in the areas between the cities' main train stations and their respective city centres. These proposed schemes are expected to improve pedestrian and cycle connectivity, complementing on-going regeneration of city centre retail and office spaces, and helping to attract economic activity back to city centres.

5.40 Neutral effects on the landscape, biodiversity and water environment are expected, although some positive setting effects are predicted as a result of the proposed traffic management arrangements and public realm outside Nottingham's Castle, which will reduce traffic flows adjacent to its entrance.

Theme B

5.41 Once again, air quality and levels of noise pollution are expected to improve thanks to a predicted modal shift from ICE cars to cycling and public transport, as a result of the proposed cycle expressways, bus priority, and RTI expansions. Air pollution is expected to further reduce with the expansion of the public EV and rapid chare point network to key Park and Ride sites which will facilitate the further uptake of Ultra Low Emissions Vehicles (ULEVs). However, neutral noise pollution benefits are expected as a result of the shift of ICE car drivers to EVs, given that tyre friction is responsible for most vehicle noise and artificial noise will soon become mandatory for EVs at low speeds as a safety feature.

5.42 Neutral effects are also expected on the townscape, landscape, biodiversity and water environment, given that the proposed infrastructure improvements are largely along

existing routes. There are no anticipated effects on the historic environment of these schemes.

Theme C

5.43 With bus priority corridors, Park and Ride expansions, new and improved cycle routes and Sustainable Workplace Travel Grants, it is anticipated that air quality and noise pollution in Nottingham will both improve, thanks to reductions in traffic flows and congestion. However, some minor landscape impacts arising from the Park and Ride are expected, given the extra footprint required for the new and expanded car parks.

5.44 The proposed schemes are expected to have a neutral impact on the townscape, historic environment, biodiversity and water environment of Nottingham, with most schemes either focused on existing routes or requiring minimal physical infrastructure.

Theme D

5.45 The air quality and noise pollution levels around Derby are also expected to improve as a result of the proposed new or improved Park and Ride hubs, bus priority routes, electric Rapid Transit, cycle corridors and Sustainable Workplace Travel Capital Grants. These schemes are designed to encourage a modal shift away from combustion cars, which will reduce traffic flows and congestion within Derby, particularly its Growth Corridors. New EV charging points, which are likely to lead to a modal shift from combustion cars to electric vehicles, are also predicted to improve air quality, although without the benefit of reduced noise pollution.

5.46 Once again, the proposed new and expanded Park and Ride car parks are anticipated to have a minor landscape impact, although to a lesser extent than in Nottingham, given the smaller car park capacities. With most schemes again focussed on existing routes or requiring minimal physical infrastructure, impacts on the townscape, historic environment, biodiversity and water environment are expected to be neutral.

6. Financial Case: Package and scheme costs

6.1 In line with DfT's co-development guidance, we prepared Low, Medium and High packages across our four transformational investment themes. This approach reflects:

- The scalable nature of our grouped scheme proposals; with the Medium and High packages each building iteratively on our Low package of TCF2 investments.
- Our focus on deliverability within TCF programme timescales. Coupled with the scalable funding approach described above it means we can adjust our delivery programme to suit available funding from DfT.
- That the majority of schemes proposed are relatively small-scale but, in aggregate, will have a transformational impact on urban mobility in our area. The nature, scale and number of schemes we have proposed is a key strength, which ensures we can spread risk across a well-balanced programme of sustainable transport interventions.

6.2 The remainder of this section presents each of the Low, Medium and High investment packages for DfT's consideration; all three of which build on the £8.35m of TCF Tranche 1 funding that we were awarded in January 2019.

Low investment package costs

6.3 Table 6-1 sets out the costs associated with delivering our Low TCF2 investment package (as summarised in Section 4 of this bid). This investment package seeks a total of £100.46m of additional DfT Capital over the next four years.

Funding profile

6.4 The funding profile for our TCF2 bid's Low investment package is spread reasonably equally across the four programme delivery years; with a focus upon smaller, easier to deliver schemes that carry less risk overall. Scheme costs are as robust as we can make them at this stage of SOBC development (all are 'pre-tender'). They are based upon outline designs and costings refined through the co-development process with DfT, and also as drawing upon our experience of delivering similar previous schemes in the local area. Where information is available, we have included allowance for statutory diversions, preliminary designs (some of which already exist), detailed design, health safety management and risk contingencies.

Table 6-1: Low investment package cost breakdown (2019 prices)

£m	2019/20	2020/21	2021/22	2022/23	Total
A: City centre connectivity and integration					
DfT Capital	£5.94	£8.84	£9.20	£9.02	£32.99
Local Contribution	£1.20	£1.40	£0.95	£0.00	£3.55
Private contribution	£0.30	£0.63	£0.43	£0.00	£1.35
Total	£7.44	£10.87	£10.57	£9.02	£37.89
B: Strategic Derby – Nottingham – EMA Connectivity					
DfT Capital	£0.88	£4.75	£5.10	£3.85	£14.58
Local Contribution	£0.10	£0.10	£0.16	£0.15	£0.51
Private contribution	£0.01	£0.04	£0.04	£0.01	£0.09
Total	£0.99	£4.89	£5.30	£4.01	£15.18
C: Nottingham Urban Growth Corridors					
DfT Capital	£1.15	£8.95	£10.60	£7.53	£28.23
Local Contribution	£0.15	£0.56	£0.70	£0.35	£1.76
Private contribution	£1.60	£1.89	£2.62	£2.37	£8.47
Total	£2.90	£11.40	£13.92	£10.25	£38.46
D: Derby Urban Growth Corridors					
DfT Capital	£1.35	£7.90	£9.10	£6.30	£24.65
Local Contribution	£0.00	£0.25	£0.25	£0.25	£0.75
Private contribution	£0.00	£0.20	£0.35	£0.43	£0.98
Total	£1.35	£8.35	£9.70	£6.98	£26.38
Tranche 1 component (already funded)					
DfT Capital	£7.09	£1.25	£0.00	£0.00	£8.35
Local Contribution	£0.41	£0	£0	£0	£0.41
Private contribution	£0.91	£0.16	£0	£0	£1.08
Total	**£8.42**	**£1.41**	**£0.00**	**£0.00**	**£9.83**
TOTALS					
Total capital (entire programme)	£21.10	£36.91	£39.48	£30.25	£127.74
Total DfT funding requested (in TCF2)	£9.32	£30.44	£34.00	£26.70	£100.46
Total private/local contribution (including any contribution made to Tranche 1 component)	£4.68	£5.22	£5.49	£3.55	£18.94
Allowance for inflation	£0.00	£1.62	£2.09	£1.94	£5.65
Cost of risks identified in quantified risk assessment (QRA)	£1.14	£1.99	£2.12	£1.63	£6.87

Allowance for inflation and risks

6.5 Construction-related **inflation** is forecast to run ahead of both Consumer and Retail Price Index measures. We allowed for this by applying the latest RICS Building Cost Information Service (BCIS) all-in tender price inflation forecasts for 2019/20-2022/23[25] to our initial cost estimates. This allowance for inflation is included in the total capital value presented in Table 6-1.

6.6 **Risks** were considered at both Programme and Theme levels. These were quantified based on the programme's Risk Register, found in Table 8-3, with cost and delivery impacts priced based on the estimated likelihood and impact of each risk. Allowance for these risks is costed within the total capital cost of the programme, and recognises that our Councils will bear the risk for any cost over-runs associated with our delivery of the TCF Tranche 2 programme. As larger schemes are developed through the local Assurance Framework, individual scheme risk registers, and risk allowances will be developed - particularly for individual theme components exceeding £5m in value.

Summary of programme and match funding

6.7 Our Financial Case spreadsheet (Appendix G) provides a detailed breakdown of our scheme cost estimates, match funding (backed by letters of support, in Appendix J), quantified risks and optimism bias (applied in the economic case). It shows how cost values set out above were built-up from those for schemes / groups of schemes. Table 6-2 summarises the sources of our TCF2 Low investment programme's funding.

Table 6-2: Summary of TCF Tranche 2 Low investment package funding

Source	Cost (£000)
Department for Transport	£100,459
Derby and Nottingham City Councils	£5,351
Nottinghamshire County Council (road resurfacing)	£511
Local public transport operators	£6,000
Local partner contributions	£2,360
Developer contributions	£3,231
Total	**£117,912**

[25] Gleeds (2019) Inflation Report 2019 Q2, page 14. Available at: https://gb.gleeds.com/contentassets/b94d2a7269fb4b76b4573bce4079374c/inflation-report-2019-q2.pdf

Medium investment package costs

6.8 Table 6-3 sets out the costs associated with delivering our Medium TCF2 investment package (as summarised in Section 4 of this bid). This larger investment package seeks a total of £131.16m of additional DfT Capital over the next four years.

Funding profile

6.9 The funding profile for our TCF2 bid's Medium investment package is spread reasonably equally across the programme delivery years, with a smaller proportion of total funds allocated in Year 1 (2019/20) than in the Low package. This still allows for early delivery of smaller schemes which are more advanced in the design process, as well as continued development of larger schemes that we expect to deliver later in the programme (e.g. new/expanded Park & Ride sites and priority bus-based rapid transit corridors). Scheme costs are as robust as we can make them at this stage of SOBC development (all are 'pre-tender'). They are based upon outline designs and costings refined through the co-development process with DfT, and also as drawing upon our experience of delivering similar previous schemes in the local area. Where information is available, we have included allowance for statutory diversions, preliminary designs (some of which already exist), detailed design, health safety management and risk contingencies

Allowance for inflation and risks

6.10 Construction-related **inflation** is forecast to run ahead of both Consumer and Retail Price Index measures. We allowed for this by applying the latest RICS Building Cost Information Service (BCIS) all-in tender price inflation forecasts for 2019/20-2022/23[26] to our base cost estimates. This allowance for inflation is included in the total capital value presented in Table 6-3.

6.11 **Risks** were considered at both Programme and Theme (groups of schemes) levels. These were quantified based on the programme's Risk Register, found in Table 8-3, with cost and delivery impacts priced based on the estimated likelihood and impact of each risk. The cost allowance for these risks is included within the total capital cost of the programme, and recognises that both Councils will bear the risk for any cost over-runs associated with our delivery of the TCF Tranche 2 programme. As with the Low

[26] Gleeds (2019) Inflation Report 2019 Q2, page 14. Available at: https://gb.gleeds.com/contentassets/b94d2a7269fb4b76b4573bce4079374c/inflation-report-2019-q2.pdf

investment package, risk registers and risk allowances will be developed continually for larger theme components (over £5m in value).

Table 6-3: Medium investment package cost breakdown (2019 prices)

£m	2019/20	2020/21	2021/22	2022/23	Total
A: City centre connectivity and integration					
DfT Capital	£6.44	£11.24	£12.15	£10.22	£40.04
Local Contribution	£1.43	£1.63	£2.03	£0.00	£5.08
Private contribution	£0.40	£0.73	£0.53	£0.00	£1.65
Total	£8.26	£13.59	£14.70	£10.22	£46.77
B: Strategic Derby – Nottingham – EMA Connectivity					
DfT Capital	£0.78	£7.50	£6.98	£4.78	£20.03
Local Contribution	£0.10	£0.10	£0.16	£0.15	£0.51
Private contribution	£0.01	£1.21	£0.71	£0.17	£2.09
Total	£0.89	£8.81	£7.84	£5.10	£22.63
C: Nottingham Urban Growth Corridors					
DfT Capital	£1.49	£13.25	£13.20	£11.00	£38.94
Local Contribution	£0.15	£0.68	£0.83	£0.58	£2.23
Private contribution	£1.60	£1.90	£2.64	£2.38	£8.51
Total	£3.24	£15.83	£16.66	£13.95	£49.68
D: Derby Urban Growth Corridors					
DfT Capital	£1.35	£10.65	£10.35	£9.80	£32.15
Local Contribution	£0.00	£0.25	£0.25	£0.25	£0.75
Private contribution	£0.00	£0.20	£0.35	£0.43	£0.98
Total	£1.35	£11.10	£10.95	£10.48	£33.88
Tranche 1 component (already funded)					
DfT Capital	£7.09	£1.25	£0.00	£0.00	£8.35
Local Contribution	£0.41	£0	£0	£0	£0.41
Private contribution	£0.91	£0.16	£0	£0	£1.08
Total	**£8.42**	**£1.41**	**£0.00**	**£0.00**	**£9.83**
TOTALS					
Total capital (entire programme)	£22.16	£50.74	£50.15	£39.74	£162.78
Total DfT funding requested (in TCF2)	£10.06	£42.64	£42.67	£35.79	£131.16
Total private/local contribution (including any contribution made to Tranche 1 component)	£5.01	£6.85	£7.48	£3.95	£23.28
Allowance for inflation	£0.00	£2.23	£2.66	£2.54	£7.43
Cost of risks identified in quantified risk assessment (QRA)	£1.24	£2.85	£2.81	£2.23	£9.13

Summary of programme and match funding

6.12 Our Financial Case spreadsheet (Appendix G) provides a detailed breakdown of our base costs, match funding, quantified risks and optimism bias (only applied in the economic case). It demonstrates how the costs set out above were built-up from those assigned to individual schemes / groups of complementary schemes.

6.13 Table 6-4 summarises the sources of our TCF2 Medium investment programme's funding.

Table 6-4: Summary of TCF Tranche 2 Medium investment package funding

Source	Cost (£000)
Department for Transport	£131,160
Derby and Nottingham City Councils	£5,826
Nottinghamshire County Council (road resurfacing)	£511
Local public transport operators	£6,000
Local partner contributions	£4,400
Developer contributions	£5,056
Total	**£152,953**

High investment package costs

6.14 Table 6-5 sets out the costs associated with delivering our High TCF2 investment package (as summarised in Section 4 of this bid). This is our preferred investment package, which seeks a total of £160.78m of additional DfT Capital over the next four years.

Funding profile

6.15 The funding profile for our TCF2 bid's High investment package allocates around 10% of the requested DfT Capital funds into Year 1, with the remainder being profiled evenly across Years 2, 3, and 4. In practice, the scalable nature of our bid themes and components means that we can be flexible in respect of the rate we draw-down this funding to support delivery. As in the Medium investment package, this allows for early delivery of smaller schemes which are more advanced in the design process, and continued development of larger schemes that we expect to deliver later in the programme (e.g. new/expanded Park & Ride sites, the public e-bike hire system,

priority bus-based rapid transit corridors). It also reflects the scalable nature of more extensively rolling-out traffic signal and bus lane priority measures, as well as dedicated cycle lane infrastructure, across the Derby and Nottingham urban area under the High investment package.

6.16 As with the Low and Medium packages, the scheme costs are as robust as we can make them at this stage of SOBC development (all are 'pre-tender'). They are based upon outline designs and costings refined through the co-development process with DfT, and also as drawing upon our experience of delivering similar previous schemes in the local area. Where information is available, we have included allowance for statutory diversions, preliminary designs (some of which already exist), detailed design, health safety management and risk contingencies

Allowance for inflation and risks

6.17 Construction-related **inflation** is forecast to run ahead of both Consumer and Retail Price Index measures. We allowed for this by applying the latest RICS Building Cost Information Service (BCIS) all-in tender price inflation forecasts for 2019/20-2022/23[27] to our base cost estimates. This allowance for inflation is included in the total capital value presented in Table 6-5.

6.18 **Risks** were considered at both Programme and Theme (groups of schemes) levels. These were quantified based on the programme's Risk Register, found in Table 8-3, with cost and delivery impacts priced based on the estimated likelihood and impact of each risk. The cost allowance for these risks is included within the total capital cost of the programme, and recognises that both Derby and Nottingham City Councils will bear the risk for any cost over-runs associated with our delivery of the TCF Tranche 2 programme. As with the Low and Medium investment packages, risk registers and risk allowances will be developed continually for larger theme components (over £5m in value).

[27] Gleeds (2019) Inflation Report 2019 Q2, page 14. Available at: https://gb.gleeds.com/contentassets/b94d2a7269fb4b76b4573bce4079374c/inflation-report-2019-q2.pdf

Table 6-5: High investment package cost breakdown (2019 prices)

£m	2019/20	2020/21	2021/22	2022/23	Total
A: City centre connectivity and integration					
DfT Capital	£6.64	£12.14	£13.35	£12.92	£45.04
Local Contribution	£1.50	£1.75	£2.10	£1.00	£6.35
Private contribution	£0.50	£0.83	£0.63	£0.00	£1.95
Total	£8.64	£14.72	£16.07	£13.92	£53.34
B: Strategic Derby – Nottingham – EMA Connectivity					
DfT Capital	£0.84	£9.05	£8.30	£7.34	£25.53
Local Contribution	£0.10	£0.10	£0.16	£0.15	£0.51
Private contribution	£0.26	£2.29	£0.79	£0.26	£3.59
Total	£1.20	£11.44	£9.25	£7.75	£29.63
C: Nottingham Urban Growth Corridors					
DfT Capital	£1.75	£15.10	£17.90	£14.40	£49.15
Local Contribution	£0.15	£0.93	£1.20	£0.58	£2.85
Private contribution	£1.60	£1.93	£2.66	£2.41	£8.59
Total	£3.50	£17.96	£21.75	£17.38	£60.59
D: Derby Urban Growth Corridors					
DfT Capital	£1.35	£13.45	£13.95	£12.31	£41.06
Local Contribution	£0.00	£0.25	£0.25	£0.25	£0.75
Private contribution	£0.00	£0.20	£0.35	£0.43	£0.98
Total	£1.35	£13.90	£14.55	£12.99	£42.79
Tranche 1 component (already funded)					
DfT Capital	£7.09	£1.25	£0.00	£0.00	£8.35
Local Contribution	£0.41	£0	£0	£0	£0.41
Private contribution	£0.91	£0.16	£0	£0	£1.08
Total	**£8.42**	**£1.41**	**£0.00**	**£0.00**	**£9.83**
TOTALS					
Total capital (entire programme)	£23.11	£59.42	£61.62	£52.03	£196.18
Total DfT funding requested (in TCF2)	£10.59	£49.74	£53.50	£46.96	£160.78
Total private/local contribution (including any contribution made to Tranche 1 component)	£5.43	£8.43	£8.12	£5.07	£27.05
Allowance for inflation	£0.00	£2.61	£3.27	£3.33	£9.21
Cost of risks identified in quantified risk assessment (QRA)	£1.40	£3.61	£3.74	£3.16	£11.91

Summary of programme and match funding

6.19 Our Financial Case spreadsheet (Appendix G) provides a detailed breakdown of our base costs, match funding, quantified risks and optimism bias (only applied in the economic case). It demonstrates how the costs set out above were built-up from those assigned to individual schemes / groups of complementary schemes.

6.20 Table 6-6 summarises the sources of our TCF2 High investment package's funding.

Table 6-6: Summary of TCF Tranche 2 High package programme funding

Source	Cost (£000)
Department for Transport	£160,782
Derby and Nottingham City Councils	£8,151
Nottinghamshire County Council (road resurfacing)	£511
Local public transport operators	£6,000
Local partner contributions	£5,980
Developer contributions	£4,926
Total	**£186,350**

Future sustainability and Section 151 Officer sign-off

6.21 Both Derby and Nottingham City Councils' Senior Responsible Officers have notified their respective Section 151 Officers of their Council's intention to bid for the capital funds outlined in this SOBC.

6.22 Consequently, they are aware of the match funding contributions which have been secured in support of the programme (as documented in Appendix J), and have agreed that Nottingham City Council's Section 151 Officer will sign-off on the bid on behalf of both Council's. This reflects Nottingham City Council's role as lead bidder and Senior Responsible Authority, and that – as the larger of the two cities – the Council will receive a larger share of TCF2 funds than Derby City Council.

6.23 The signed Section 151 Officer Declaration is included in the SOBC coversheet submitted with this funding proposal and:

- confirms the Councils have jointly allocated sufficient budget to deliver the packages of schemes on the basis of its proposed funding contribution;

- accept responsibility for meeting any costs over and above the DfT contribution requested, including potential cost overruns and the underwriting of any funding contributions expected from third parties;
- accept responsibility for meeting any ongoing revenue and capital requirements in relation to the scheme;
- accept that no further increase in DfT funding will be considered beyond the maximum contribution requested and that no DfT funding will be provided after 2022/23;
- confirm that the authority has the necessary governance and assurance arrangements in place and the authority can provide, if required, evidence of a stakeholder analysis and communications plan in place.

6.24 This sign-off is consistent with that provided for our Transforming Cities Fund Tranche 1 funding application.

7. Commercial Case: Procurement and deliverability

7.1 This section of the document explains how Derby and Nottingham City Councils will collaborate to procure and deliver the programme – thereby ensuring its commercial viability within the Transforming City Fund timeframe.

7.2 Commercial cases will be developed further as the programme, and individual schemes, progress through the local Assurance Framework (as outlined in the Management Case of this draft SOBC). They will focus on the following core requirements:

- Ensuring stakeholders' support the proposals;
- Ensuring the programme and its interventions are of high quality;
- Delivering the programme within the available funding; and
- Ensuring Value for Money is achieved.

Procurement strategy

7.3 The Derby-Nottingham area has a proven track record of delivering a wide range of public transport and active travel improvements, including innovative contracts such as the cutting-edge Robin Hood multi-operator public transport ticketing products and the UK's first charge point concession framework (awarded to BP Chargemaster in 2018). In Derby the Strategic Bus Partnership has worked collectively with private sector operators to develop the 'Spectrum' multi-operator ticket and cashless payments. Both authorities have a long history of working creatively with local cycling groups, and more recently these relationships have been fruitful in the development of the D2N2 LCWIP. The project teams across both authorities have also developed a range of skills through effective partnership working with a variety of organisations across the public and private sectors, on which we will draw to deliver the Transforming Cities Fund programme.

7.4 As the accountable body, Nottingham City Council will be responsible for all financial management and has a commitment to ensure its procurement will be fair, open and transparent. New procurement to be undertaken will comply with all relevant legislation, including European and UK Procurement Regulations and will be in accordance with the City Council's Financial Regulations and Contract Procedure Rules.

7.5 To achieve this, the council will:

- Follow robust governance procedures to ensure accountability and compliance.
- Work in an inclusive way, valuing diversity and actively promoting equality, diversity and equity.
- Implement consistent, open, transparent, proportionate and accessible processes and systems to enable the full participation of all potential suppliers.
- Ensure a level playing field for all supplies and that third sector, small and medium sized organisations, or start-ups are not disadvantaged by the council's processes.

7.6 The project team holds significant knowledge and expertise in delivery of both large-scale infrastructure and specialist, innovative improvements. This includes legal, finance, procurement and project management expertise, all of which will be vital in helping to deliver the procurement strategy.

7.7 Delivery of the projects within each of the four themes can largely be flexible, enabling the programme to be tailored to DfT's four-year funding profile for the TCF programme. It is proposed to hold a delivery workshop post-funding award with project leads, legal and procurement representatives in order to set out a detailed delivery timeline across the programme. This will ensure alignment with the funding profile, co-ordination with linked projects and resource availability to ensure programmed delivery timeframes can be met. This delivery plan will to take into account any project assurance reviews recommended by the City Council's Portfolio Management Office.

Rationale for selecting preferred procurement routes

7.8 In developing the procurement strategy, we sought to maximise existing arrangements for delivery via in-house contracts, existing frameworks and support services that are already procured.

Highway-related public realm, bus priority and cycle schemes

7.9 As such the majority of the bus priority measures and cycle schemes across the bid area will be delivered by the relevant authority's in-house contract, or through Nottingham and Derby joint framework contract, which will enable a joined-up delivery approach. Where specialist input will be required, and to ensure value for money is achieved, new OJEU procurements will be undertaken to deliver schemes such as the DRT Gateway Shuttle and Derby eRT system (phase one of which can be delivered in the TCF Tranche 2 programme period).

7.10 The Southern Gateway of Nottingham is currently going through a major transformation including a multi-million pound redevelopment of the intu Broadmarsh centre, with a new car park/ library/ bus station building being delivered by the City Council adjacent to the site. Works have commenced on site, and a number of the Nottingham TCF schemes (notably those in Theme A) will need to be co-ordinated with the wider Broadmarsh delivery programme. Delivery of these elements will utilise existing in-house contracts, with standing links to the Southern Gateway regeneration area works already being undertaken.

7.11 BP Chargemaster operates a concession to deliver a network of fast (7kW) and rapid (50kW) publicly accessible chargepoints across the D2N2 area. This will be utilised to deliver the Chargepoints being delivered in the Broadmarsh area in Theme A, alongside with wider network expansion proposed in Theme B.

Real-time information and smart fare/ticketing systems

7.12 Nottingham City Council already manages the back-office system for real-time public transport information across Derby, Nottingham, Derbyshire and Nottinghamshire local authority areas. Over the past 15 years ~£15m has been invested in the system. The core supplier for the back-office control system is INIT, along with some input from Procyon and Trapeze and on-street displays provided by Daktronics (LED) and 21st Century (LCD/TfT). A data broker system has been developed with 21st Century to expand the scope of the real-time system beyond the acceptance of data feeds from INIT only ticket machines. This will enable further regional expansion of the availability of real-time public transport information in areas where currently it is only possible to provide information to travellers about scheduled services.

7.13 A significant amount of market engagement has already been undertaken by way of the D2N2 Real Time Information Partnership, comprising the D2N2 Local Authorities, bus operators and market suppliers. A report published in February 2019 set out a number of recommendations alongside a Technical Road Map to create a more robust system, and improve the experience of public transport users. Some of these recommendations are already being implemented, such as the Data Brokerage System being delivered as part of the TCF Tranche 1 programme.

7.14 In taking these recommendations to the next stage, an OJEU procurement exercise will be undertaken to secure a provider to deliver a single content management system for the real-time system as part of the Tranche 2 bid. To compliment work already undertaken as part of the D2N2 Real Time Information Partnership, an additional small period of soft market testing is proposed with potential suppliers prior to publication

of the Invitation to Tender. Once operational, the system will enable real-time feeds to be delivered through one gateway to various digital platforms, rather than the multiple content management systems that have to be updated at present. This system will also benefit the Data Platform element of our Future Mobility Zone bid, should this be supported by DfT.

7.15 Utilising any lessons learnt from the Tranche 1 project, which has already procured 250 screens, a further OJEU procurement exercise or mini competition through the Crown Commercial Services framework will be undertaken for a service provider to deliver RTI stop displays, screens and totems. Delivery of the RTI TFT screens and RTI totems will be combined within this, so that delivery is through a single contract with the same service provider. This will ensure best value for the Councils in terms of both project delivery budgets and internal resources to support delivery.

7.16 There has been in depth discussion with transport operators through the Robin Hood Operators group to develop the smart ticketing and contactless payment projects, with operators recognising the importance of these initiatives in improving the public transport experience for their passengers. It is proposed to utilise grant funding arrangements for delivery of the tram ticket vending machines, EMV card validators and EMV bus ticket machines upgrades, which will be procured by the relevant transport operators. This will enable operators to utilise their own frameworks, so that the required upgrades provide the best fit with their existing operating and maintenance arrangements.

Public cycle/e-bike hire systems

7.17 In Nottingham, the City Council previously used LSTF funding to operate a popular citywide on street bike hire scheme. The scheme closed when funding ceased in 2016, however aspirations for delivering a cycle hire scheme remain an ambition for the city.

7.18 Following issues with the e-bike scheme initially proposed in the Tranche 1 bid, officers at Nottingham and Derby are now looking to deliver a revised bikeshare scheme to operate across the Derby-Nottingham area. This will be based on lessons learned in Nottingham and more recently Derby, with a focus on overcoming challenges with security and vandalism in order to deliver a sustainable scheme in partnership with reputable private sector operators.

7.19 The Councils have been engaging with the market to develop a public bikeshare strategy for Cycle Hire for the last couple of years. In 2017 a study was undertaken through Bikeplus (now CoMoUK), with support from local transport consultants ITP, to understand the potential for a citywide on-street bike hire scheme in Nottingham

based on experience nationally and internationally. Officers have also liaised with colleagues involved in bike hire in other UK cities; including Manchester, Newcastle/Gateshead, Birmingham/West Midlands, Leeds, Sheffield, Liverpool, Bristol, various London Boroughs, Edinburgh and Cambridge, to gain insight into how schemes operate in these areas. The City Council has also taken part in the regular CoMoUK teleconferences on bike hire and attended conferences on the subject in Oxford (twice, including one focused on e-bikes), Leicester and Manchester in 2017 and 2018.

7.20 Throughout 2018, Nottingham City Council was in discussion with a number of potential operators - including Jump, with whom we developed the 750 e-bike scheme proposal that formed part of our TCF Tranche 1 proposals. However, as reflected in the national picture, several providers have been undertaking a review of their UK operations, leading to uncertainty as to how the future model will operate away from major metropolitan areas and in core cities like Nottingham and Derby.

7.21 The business case for the bikeshare scheme being procured as part of our Tranche 2 bid will be developed in consultation with the DfT, CoMoUK, market operators and key stakeholders (including the Derbyshire and Nottinghamshire police forces) to build a workable bike hire model for medium sized towns and cities. Development will contain an assessment of possible financial models - including the option of operating the scheme as a concession, thereby reducing the risk to the Council.

7.22 Our procurement approach to each element across the four themes is summarised in Table 7-1, and is differentiated for each of the Low, Medium and High investment packages presented in this SOBC.

Table 7-1: Procurement strategy

Project		Procurement Approach	Expected value (£m)
Theme A: City centre connectivity and integration			
Nottingham City Centre Hubs	Station Street access, pedestrian facilities and strategic cross-city cycleway	Cycle improvements will be delivered in-house by the City Council's Direct Labour Organisations (DLO) or existing frameworks	Up to £7.600
	Castle-Broadmarsh wayfinding + EV charging	Charging infrastructure delivered through D2N2 Chargemaster contract	£0.150
		Wayfinding signage procured through existing call-off framework	£0.330
		Castle Highways/public realm works delivered in-house/by contractors.	Up to £2.000
Nottingham rail/bus station area public realm	Broadmarsh Public Realm Stage 1 & 2	Public Realm improvements will be delivered through a combination of existing frameworks and in-house contracts	Up to £20.000
Derby City Centre Hubs	Derby bus station vehicular entrance/exit upgrades	Derby City Council Highways Maintenance Framework/Midlands Highways Alliance Medium Schemes Framework/Midlands Highways Alliance Medium Schemes Framework	Up to £4.500
	City Centre to Derby Rail Station Access Improvement Scheme	Derby City Council Highways Maintenance Framework	Up to £4.000
Derby rail/bus station area public realm	Public Realm work within the key areas of the city centre (The Spot, Becketwell, Vic/Alb Street)	Derby City Council Highways Maintenance Framework	Up to £4.000

Project		Procurement Approach	Expected value (£m)
Theme B: Strategic Derby – Nottingham – EMA Connectivity			
Derby-EMA-Nottingham Cycle Expressway	Strategic cycle link development Derby - A6005 + Derby – EMA	Delivered in house by the City Council's DLO or through existing frameworks. Will require co-development with Derbyshire, Nottinghamshire and Leicestershire County Councils, and Highways England	Up to £3.100
	Strategic cycle link development Nottingham A6005 + A453 old road		Up to £6.804
Bikeshare programme	Bikeshare programme	A service provider (to deliver across both cities) will be sought via an external OJEU procurement exercise	Up to £4.000
Inter-urban bus priority improvements	New Content Management System for the Derbys- Notts realtime system	NCC will lead a new OJEU procurement exercise to deliver the Derbys - Notts Realtime System Back Office across the bid area	£2.000
	Futureproofing of the Derbys - Notts HOPS Back Office	NCC will lead a new OJEU procurement exercise to deliver the Derbys - Notts HOPS Back Office across the bid area	£0.200
	New Robin Hood fare products (including Student PAYG)	Direct award to existing service provider (INIT)	£0.200
	Robin Hood tram TVM upgrade	Upgrade of tram ticket machines procured by Tramlink Nottingham	Up to £0.460
	EMV Card Validators and Ticket Machines	Grant award to bus operators to procure directly / direct award to INIT	Up to £0.465
	Derby EMV upgrades/RH integration	ESPO Consultancy Framework, Crown Commercial Services Framework	£0.300
	Inter-urban bus lane and traffic light priority on key approaches	Do be delivered by the relevant authority through in-house their in-house contracts or via existing frameworks	Up to £5.000
DRT	DRT operated EMG Gateway Shuttle	NCC will lead a new OJEU procurement exercise with key partners	Up to £1.000
EV charging	D2N2 charge point network expansion	Existing BP Chargemaster contract (civils/back-office/points/maintenance)	Up to £2.000

Project		Procurement Approach	Expected value (£m)
Theme C: Nottingham Urban Growth Corridors			
Nottingham bus priority corridors	Boots Enterprise Zone (Thane Road) Bus and ULEV Priority Lane	Improvements to Thane Road and Clifton Bridge in house by the City Council's DLO or via a formal procurement exercise	Up to £2.500
	Clifton Bridge junction improvements		
	A612 Colwick Loop Road between Private Road No. 1 and Victoria Park Way Bus and ULEV Lane	Works to be completed in partnership with Via East Midlands (Nottinghamshire County Council)	£0.300
	Colwick crossing signal upgrade	Formal written quotes to be obtained through the e-tendering system. Where possible, at least one local supplier will be invited to provide quote.	£0.050
	Real-Time Information stop displays, totems and Private Mobile Radio to SIM Upgrade	A single OJEU procurement exercise/mini comp off CCS framework to be undertaken for a service provider to deliver RTI stop displays, screens and totems	Up to £2.000
	A609 Ilkeston Rd, A610, A60 central, A60 Mansfield Rd	Works to be procured through existing frameworks	£3.780
	Switch on traffic light priority at 64 existing SCOOT/MOVA junctions	Works to be completed in partnership with Via East Midlands (Nottinghamshire County Council)	£0.359
	60 x RTI TFT screens + 6 x RTI totems	Combined procurement with Real-Time Information stop displays	TBC
	Additional 6 x RTI totems	Combined procurement with Real-Time Information stop displays	TBC
	Pinch Point Bus Priority Package - B5010 Nottingham Rd – Bramcote	Works to be completed in partnership with Via East Midlands (Nottinghamshire County Council)	£1.200

Project		Procurement Approach	Expected value (£m)
Nottingham bus priority corridors	Victoria and Bulwell bus station improvements	Elements within the package will be procured via formal written quotes or full procurement exercise	£0.250
	Hucknall Road / Bestwood Road and Hucknall Road / Bestwood Park Drive installation of SCOOT	Works to be procured through existing frameworks	£0.300
	Arnold Road / Edwards Lane installation of MOVA	Works to be procured through existing frameworks	£0.200
	Bus lane enforcement cameras	Works to be procured through existing frameworks	£0.300
	Nottingham University Hospitals Campus Road Improvements to support larger bus capacity on the Medilink service	Works to be completed in partnership with Nottingham University Hospitals as works are being undertaken on their land.	£0.200
	Carey Road / Stockhill / David Lane Level Crossing Cameras and Traffic Signals	Elements within the package will be procured via formal written quotes or full procurement exercise	£0.200
	Pinch Point Bus Priority Package - A610 Nottingham - Cinderhill + A60 Cross St to Sir Robinson Way	Works to be completed in partnership with Via East Midlands (Nottinghamshire County Council)	£3.020
	Bestwood and Arnold Bus Lane Package	Works to be completed in partnership with Via East Midlands (Nottinghamshire County Council)	Up to £2.333

Project		Procurement Approach	Expected value (£m)
Nottingham Park & Ride upgrades	New bus-based P&R off Leapool roundabout	Delivery of the Leapool P&R site will be completed in partnership with Nottinghamshire County Council	£2.400
	Expansion of tram-based P&R sites	Tram based sites will require new OJEU procurement exercise for construction works. Land acquisition managed in house/existing contracts.	Up to £8.800
LCWIP cycle corridors	Improved River Trent ped/cycle crossings + onward connections	Works to be procured through existing frameworks or full tender exercise, depending on which bridge scheme is taken forward	£8.330
	Nottingham Ring Road cycle lanes	Improvements will be delivered in-house by the City Council's DLO or existing framework contracts.	£1.100
	LCWIP North (Hucknall Rd Greenway)		£0.200
	River Leen Wilkinson St P&R to Church St		£0.253
	LCWIP South - Queens Drive (up to Thane Road via P&R)	Delivered in-house by City Council's DLO/existing framework contracts unless formal procurement is undertaken for Than Rd bus improvements through which cycle improvements will also be included in the spec.	Up to £2.380
	LCWIP NW (Wigman/Beechdale Rd)	Improvements will be delivered in-house by the City Council's DLO or existing framework contracts.	Up to £2.366
	LCWIP North East (St Anns Well Rd)		Up to £1.117
	Hucknall Rd Northern cycle corridor		Up to £1.400
	Mansfield Rd South of Hucknall Rd		Up to £0.411
	LCWIP East (A612 corridor)		Up to £0.215
Workplace travel capital grants	Workplace travel capital grants	Continuation of existing grant scheme to businesses. Administered by Nottingham City Council's Workplace Travel Officers. Grant agreements to be entered into with successful organisations.	Up to £1.000

Project		Procurement Approach	Expected value (£m)
Theme D: Derby Urban Growth Corridors			
Derby Smart Park & Ride hubs	3 x P&R Smart Hubs, bus lanes and cycle lanes	Midlands Highways Alliance Medium Schemes Framework	Up to £9.164
Bus + rapid transit improvements	DRT for Infinity Park, RR, Bombardier, bus/rail station, city centre	New OJEU procurement exercise	Up to £3.250
	eRT link Cathedral Quarter to Pride Park	New OJEU procurement exercise	Up to £11.500
	Derby bus partnership corridor improvements	Derby City Council In House Contract Team/Derby City Council Highways Maintenance Framework	Up to £8.000
Derby LCWIP priority cycle corridors	City centre - Mickleover cycle route	Derby City Council In House Contract Team/Derby City Council Highways Maintenance Framework	Up to £3.000
	Pentagon Island - Spondon (Nottm Rd) cycleway	Derby City Council In House Contract Team/Derby City Council Highways Maintenance Framework	Up to £3.000
	City Centre - Raynesway (A52) cycleway	Derby City Council In House Contract Team/Derby City Council Highways Maintenance Framework	Up to £3.000
Workplace travel capital grants	Workplace travel capital grants	Continuation of existing grant scheme to businesses. Administered by Workplace Travel Officers in Transport Strategy. Grant agreements to be entered into with successful organisations.	£0.150

Treatment of costs and risks

7.23 The Councils will make use of existing frameworks, including the OJEU compliant Nottingham and Derby joint framework contract. This contract is managed and monitored by both Council's Highway Services to ensure that it achieves value for money, a satisfactory finished product and procurement adherence.

7.24 It is proposed to combine delivery for some of the projects (for example Boots Enterprise Zone (Thane Road) Bus and ULEV Priority Lane with the Clifton Bridge improvements) into a single procurement exercise. This will ensure best value is achieved, risk is reduced, and disruptions as a result of the works are minimised.

7.25 Whilst Nottingham City Council and Derby City Council are delivering the Transforming Cities Fund bid jointly, a number of the schemes will have delivery elements in Nottinghamshire County Council Derbyshire County Council and Leicestershire County Council. These cross-authority schemes will be jointly co-developed, and a Collaboration Agreement/Memorandum of Understanding established to govern their respective rights and obligations going forward.

7.26 Where grant funding arrangements are utilised, payments to the recipient will be made in arrears. These schemes will also be subject to the same project monitoring controls being utilised across the overall programme.

8. Management Case: Governance, risks, monitoring and evaluation

8.1 This final section of the SOBC sets out our delivery plan for the programme. It includes:

- A high-level work programme for the period January 2020 (the assumed start date in 2019/20) to March 2023 (the end of the TCF delivery period) and summarises the specific governance arrangements we have put in place.
- Identified key risks to programme delivery, including critical dependencies, and set out a clear plan for managing and mitigating them.
- A description of the track record that Derby and Nottingham City Councils have built-up through working closely over a sustained period of time to deliver key transport programmes. In doing so we have identified key lessons learned that we will apply to our delivery of the Transforming Cities Fund programme.

Track record in delivery

8.2 Our joint city region has taken a pioneering approach for over a decade, bringing forward creative solutions to support integrated transport delivery. This spirit is at the heart of the Derby-Nottingham TCF programme and further exemplified by our ambitious Future Mobility Zone fund bid.

8.3 Nottingham City Council is an award-winning authority (Ashden Award 2018 winner) and will be the accountable body for the Derby-Nottingham TCF Tranche 2 packages. The Council has a proven track record for delivery of large transport schemes and has developed innovative measures to encourage mode shift from car travel to walking, cycling and public transport use. It has achieved this through effective partnership working with a range of organisations across the public, private and third sectors.

8.4 Examples include:

- NET Lines One and Phase Two
- Nottingham Station redevelopment
- Nottingham Cycle City ambition package
- Better Bus areas

- Local Growth Fund projects (Southern Growth Corridor bus priority scheme, Enterprise Zone sustainable transport package including pedestrian/cycle bridge and Southside Transport Strategy)
- Low and Ultra Low Emission Bus scheme
- National Productivity Investment Fund (smart ticketing)
- Only UK city to have introduced a Workplace Parking Levy

8.5 Derby City Council has an equally solid history of delivery with mature cross-sector relationships, including its Strategic Bus Partnership. This complements the skills and experience in Nottingham, with key delivery examples including:

- Connecting Derby: Completion of the inner ring road
- Our City Our River: Landmark flood defence programme
- Derby Bus Station: relocation and new build
- Better Bus and Connected programme
- Derby Arena and Velodrome development
- Original Cycle Demonstration City
- Southern Derby Cycle package
- Derwent Riverside cycle programme phases 1 and 2

8.6 Our two cities have many things in common - like our strong modern manufacturing base, a legacy of our proud industrial heritage. By combining our strengths, we can present a more compelling offer for trade and investment and to retain our world leading companies and supply chain. It is through our combined scale that will have more impact in an increasingly globalised world.

8.7 Our citizens already connect our cities and have been doing so for years; over 40,000 people commute in and out and many people have family living in both. We have so much more in common that we do in competition. It is only by speaking with a strong, united voice that we will be able to make the case for the better transport links which is integral to our economic success.

8.8 This shared understanding permeates our TCF programme. TCF is the natural next stage in our joint endeavours, building on the successful delivery of the following:

- Metropolitan strategy
- Go Ultra Low City programme
- D2N2 Access Fund programme

Governance

8.9 Nottingham City Council is the Accountable Body and shall hold and account for the TCF budget and expenditure on behalf of the Joint Board. As the Accountable Body it will take on lead responsibility for coordinating funding from the DfT and allocating funding to partners, delivering particular activities from time to time as identified, defined and agreed by the Joint Derby-Nottingham Mobility Programme Board. As such, Nottingham City Council will take responsibility for regular progress reporting to DfT through the co-development process, as well as the coordination of monitoring and evaluation activities.

Joint governance arrangements

8.10 Building on existing governance arrangements, a refreshed Joint Derby-Nottingham Mobility Programme Board has been established to oversee the TCF programme. It will also provide a forum for reporting progress on current jointly promoted initiatives such as the Access Fund and Go Ultra Low programmes, and our Future Mobility Zone programme (should it be successful).

8.11 At a strategic level, the Joint Derby-Nottingham Mobility Programme Board will provide a steer for all projects within the programme and will provide coordination between the projects to give delivery confidence and facilitate decision making. The Board will facilitate consultation between the individual projects, the relevant Portfolio Holders and Executive Boards at each Authority. In addition, it will report upwards to the Metro Delivery Board and D2N2 Local Enterprise Partnership (LEP) regarding TCF progress.

Terms of Reference

8.12 The Joint Derby-Nottingham Mobility Programme Board can make decisions and allocate resources as long as these are consistent and within the Executive Board or Cabinet approval (secured through each Council's approval process) for the programme. Any changes proposed that are beyond the approval already given would need to be referred back as follows:

- In Nottingham: to the Executive Board, or to the Corporate Director for Development and Growth (NCC) as the delegated authority
- In Derby to Cabinet or the Strategic Director for Communities and Place in conjunction with the relevant other delegated persons.

8.13 The remit of the Programme Board will be to:

- Ensure commitment to the programme from Members and Corporate Leadership
- Coordinate responses to DfT
- Give direction and provide a steer on all of the projects within scope and ensure successful delivery in line with the approved business case
- Ensure a robust escalation process is in place, and to present to Metro Delivery Board/Internal Governance as required
- Provide guidance on the inter-dependencies within the programme
- Ensure integration with key policies and objectives and provide a link to corporate governance
- Receive monitoring reports for the programme with exception reports to highlight key issues
- Review and monitor the programme budget
- Consider reports/presentations on strategic issues, and advise on any change to project scope
- Oversee project team resource requirements, roles and responsibilities
- Provide sign off to projects at key stages, and seek assurance on projects as appropriate
- Manage risk within the programme and ensure risk registers are maintained at project/programme level
- Ensure that full and comprehensive evaluation is undertaken.

8.14 The Joint Programme Board already exists, and has been fulfilling this function since the inception of our successful TCF Tranche 1 bid in early 2019.

Membership

8.15 To reinforce the strong collaboration and shared vision set out in the original TCF Expression of Interest, there is a named Derby and Nottingham officer for Board roles.

8.16 The Senior Responsible Owner will have overall decision-making responsibility for ensuring the TCF programme meets its wider objectives and delivers against the desired outcomes. Overseeing the programme to time, budget and quality, the Senior Responsible Owner is responsible for the success of the proposals and owns the business case, provides leadership, manages relationships with partners/stakeholders and recommends opportunities to optimise cost and benefits.

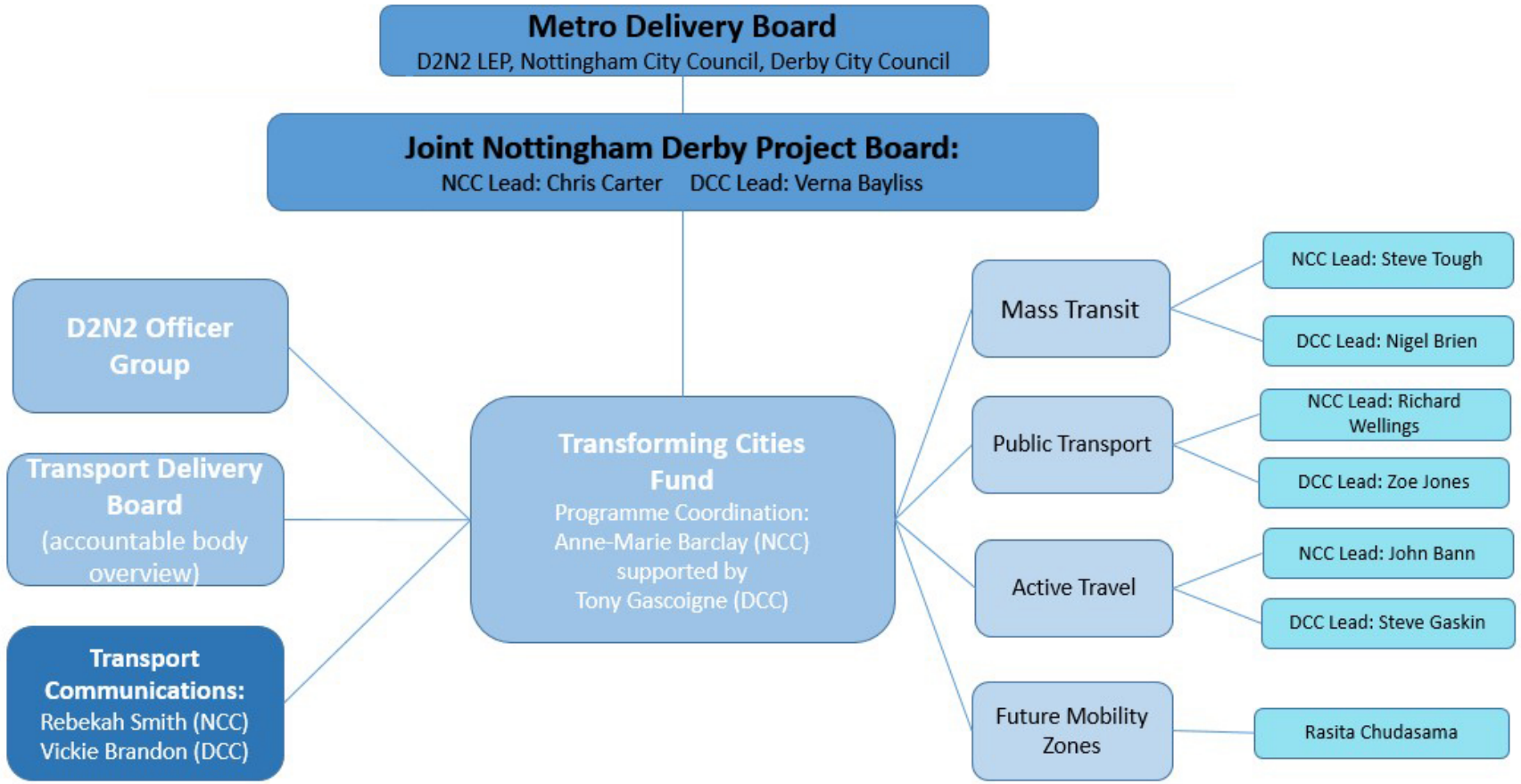
8.17 This function will be carried out by Chris Carter, Head of Transport Strategy, Nottingham City Council and Verna Bayliss, Acting Director of Planning and Transport, Derby City Council.

8.18 The Programme Manager (Anne-Marie Barclay, based within the Major Projects team, Nottingham City Council, and supported by Tony Gascoigne, Derby City Council) will manage the day to day delivery of the scheme on behalf of the Board, ensuring it delivers to the required quality standards and within the specified tolerances of time, costs and resources. The Programme Manager will oversee the change control and risk management functions, is responsible for overseeing commissioning activities, both internally and other external contractors, financial monitoring, reporting of progress to the Board, DfT and other stakeholders, coordinating communications activities and ensuring evaluation activities are undertaken as required.

8.19 At the project level, regular meetings will be led by the Programme Manager with project delivery teams. The project delivery teams will consist of specialist skilled staff responsible for the delivery of the specified projects and of reporting project deliverables and other outputs to be fed into the overall evaluation activities. For significant divergences to timescales, costs or any other variations, these changes are captured by the Programme Manager, and where necessary escalated to the Board and/or SRO for resolution.

8.20 An organogram of the TCF Programme Board is provided in Figure 8-1

Figure 8-1: TCF programme governance



Metro Delivery Board

8.21 The Metro Delivery Board sets the shared ambitions for the joint city region and agrees the outcomes and actions to be taken forward. It seeks to build consensus between the Authorities involved and oversees the actions agreed. Meetings are attended by unitary and two-tier local authorities from across the two city regions and are chaired in rotation.

8.22 It has agreed the following collaborative principles:

- Challenge ourselves: Always ask if we can add value by collaboration
- Build understanding: Proactively build relationships and understanding between our areas.
- Collaborate: Engage other stakeholders who will benefit from strong, vibrant region.
- Learn together: Respect our differences and keep our identities but learn from this diversity.
- Champion: Advocate for the urban and make the case for supportive, inter-related places.

8.23 One of the ambitions of this collaboration, is to improve accessibility through shared development of transport corridors, application of new transport technologies and better integration with our rail and airport interchanges. The TCF programme forms the basis of our action to achieve this ambition. The Joint Derby-Nottingham Mobility Programme Board will report to the Metro Deliver Board to update on progress and performance and to escalate any issues to remove barriers or blockages to delivery.

8.24 The accountability and reporting responsibilities of members are outlined below:

- Decisions are taken within the remit of each Council's governance and reported back.
- Supportive challenge and scrutiny is embedded in governance arrangements including sound financial management and value for money.
- High level risks to achieving the strategy are identified and mitigation activity allocated.
- Communicate the work of the Board, sharing best practice and be committed to learning.

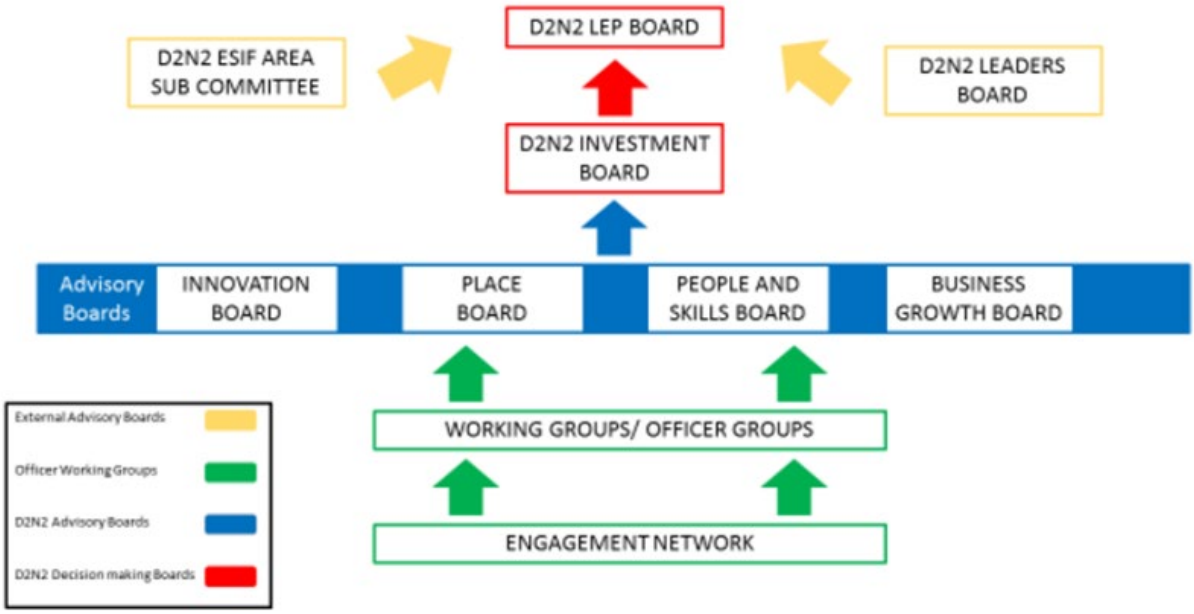
D2N2 Local Enterprise Partnership (LEP)

8.25 The LEP Board is the LEP's ultimate decision-making body. It is comprised of public and private members who work collaboratively to ensure that decisions are made in the interests of promoting inclusive growth, prosperity and improved productivity in the local area and beyond. As the ultimate decision-making body, even when the LEP Board puts in place a scheme of delegation, the LEP Board remain responsible and accountable for the delegated decision.

8.26 The LEP Board contains representatives from different parts of the community, with two thirds of its representatives from the private sector as defined by the National Accounts Sector Classification. The remaining third is represented by Local Authorities (see Figure 8-2).

8.27 The LEP Investment Board is responsible for determining economic strategy for the region and setting the priorities for funding. LEP funding is supporting delivery of some of the complementary programmes/projects through oversight of local growth fund projects.

Figure 8-2: LEP governance structure



LEP local assurance framework

8.28 The TCF programme will fall under the D2N2 LEP Local Assurance Framework. The framework sets out how the LEP will continue the process of ensuring value for money, prioritisation, appraisal, business case development and risk management. D2N2 has

clear systems, rules and practices and processes in place to ensure that decisions are made on a transparent basis, by the appropriate persons or groups and on merit. It is fully committed to ensuring the highest standards of governance, accountability and transparency across all aspects of its activities and reviews the framework annually to ensure consistency and full compliance with the National Assurance Framework.

8.29 The Accountable Body for D2N2 is Derbyshire County Council which has responsibility for ensuring this Local Assurance Framework is in place, meets the standards set out by Government and that all funding decisions are made in accordance with it. D2N2 will notify the Ministry of Housing, Communities and Local Government (MHCLG) of any significant changes made.

8.30 The full D2N2 Local Assurance Framework can be **viewed online here**.

Detailed programme plan

8.31 As lead authority, Nottingham City Council will provide a clear and coordinated strategic approach to the management and delivery of the programme using PRINCE2 project management processes and act as the central budget holder responsible for financial management. Derby City Council programme management processes also use PRINCE2. Both Councils' corporate functions have worked collaboratively to ensure that they are fully aligned and that both organisations requirements are met, particularly in terms of governance and approval.

8.32 Resources are secured to deliver the Tranche 2 programme. Teams are well established in both Councils with significant knowledge and extensive skills in designing, testing and implementing a range of highly innovative transport solutions. This experience has often been gained in the context of tight delivery timescales and demanding funding requirements. This is demonstrated by the successful and effective delivery of a variety of DfT-funded programmes, as well as transport initiatives funded through other means such as the D2N2 LEP.

Commitment to continuous learning

8.33 Our ability to regularly assess and review our TCF programme will be critical to maintaining continued confidence and assurance in our programme. As learning organisations, both Councils are committed to a dynamic process of learning. Lessons will be recorded by the Programme Manager throughout the TCF programme. These insights will be identified continuously through the programme with all relevant team members to allow improvements to be timely and effective. Following implementation, a closedown workshop will be held with the Programme Manager, Project Leads and

Project Managers to discuss lessons learned and these will be shared with the Joint Derby-Nottingham Mobility Programme Board. The Board will then ensure their dissemination more widely across other projects and programmes where learning could be beneficial to other areas of the councils. We will of course share this knowledge, where appropriate, with our delivery partners and expect that this approach will be reciprocated.

The programme plan

8.34 The programme plan is included in Appendix K and covers the pre-implementation set up/commissioning stages which will be initiated during 2019/20 in readiness for delivery from April 2020. For projects where existing suppliers are in place, project delivery will commence in May 2020 once the scope of works are agreed. The project plan forms a 'live' document and as such will be regularly reviewed and updated by the Programme Manager in consultation with the delivery leads during the course of the years. Progress/variations will be reported to the Joint Derby-Nottingham Mobility Board via the Programme Manager.

8.35 Table 8-1 includes a plan of key milestones and activities across the TCF programme period.

Critical path and key dependencies

8.36 A series of key dependencies are noted relating to the projects which, if missed or not realised in time, could impact the delivery programme tolerances of cost, time or quality. Impacts may be felt in delays to implementation, compromised quality outputs, resource not in place in time to realise maximum benefits or missed opportunities. These are detailed in Table 8-1.

Table 8-1: Key milestones linked to successful delivery

Milestone	Implications	Date
Bid submission	Tranche 2 SOBC submitted to DfT	28 November 2019
TCF announcement	Notify Joint Board	Expected January 2020
Executive Board approvals	Formal acceptance of funding approvals by Accountable Body	March 2020
Alternative Executive Board		April 2020

Milestone	Implications	Date
Partner approvals	Allocation of funding to partners and partner acceptance	April/May 2020
Project inception	Initiate project scoping/design	May 2020 onwards
Delivery workshop	Coordination of procurement, legal and design resources	May 2020
Evaluation Plan	Co-development of Evaluation Plan	Year 1
Reporting to DfT	Progress reporting to DfT	Quarterly
Communications	Initiate communications plan	Throughout
Community of Practice	Share project delivery experience	Throughout
Lessons learnt workshop	Review of what's worked	March 2023
Evaluation	Initial evaluation	By March 2024
Final evaluation	Final after scheme evaluation report	By March 2028

Resources and reporting

8.37 As a result of the delivery of previous programmes the Councils have developed a strong partnership and a project delivery team comprising transport planners/project managers are in place with relevant expertise and knowledge. This is supplemented with procurement, property, finance and legal colleagues who have developed a clear understanding of mass transit, smart ticketing, cycling, and electric mobility, which will benefit the TCF programme delivery.

8.38 The full list of the TCF project team and their roles is set out in Table 8-2:

Table 8-2: Derby-Nottingham TCF programme team members and their role

Name	Role
Councillor David Mellen, Leader Councillor Chris Poulter, Leader	Project Sponsors
Chris Carter, Head of Transport Strategy, Nottingham City Council Verna Bayliss, Acting Director of Planning and Transportation, Derby City Council	Senior Responsible Owner

Name	Role
Anne Marie Barclay, Major Projects, Nottingham City Council Tony Gascoigne, Group Manager, Derby City Council	Programme Manager
Steve Tough, Head of Public Transport, Nottingham City Council Nigel Brien, Head of Traffic and Transport, Derby City Council	Mass transit leads
Richard Wellings, Principal Public Transport Officer, Nottingham City Council Zoe Jones, Passenger Transport Co-ordination and Strategy Team Leader, Derby City Council	Public transport leads
Keith Morgan, Principal Transport Planner, Nottingham City Council Steve Gaskin, Cycle Infrastructure Co-ordinator, Derby City Council	Active travel leads
Peter Saunders, Senior Transport Planner, Nottingham City Council Adam Sendall, Local Sustainable Transport Fund Team Leader, Derby City Council	Business engagement
Dr Simon Dale, Principal Officer, Nottingham City Council	Monitoring and evaluation lead

Reporting schedule

8.39 All projects within the TCF programme will complete a monthly monitoring report to update on progress and current spend, alongside a RAG rating for project's progress in terms of time, cost and scope, and include a section on lessons learned. This information will be consolidated into a programme report, which will be circulated to Board members each month.

8.40 In the event of an exception occurring the Programme/Project Manager will produce an exception report to provide information about any issues or risks that could affect the delivery of the programme or reputation of the councils. Any change will need to be considered in terms of its impact on time, cost and quality, and its effect on other interdependent projects within the programme. The report will be tabled at the Board and depending on the scale of the exception; these reports may be escalated to the Metro Delivery Board or through the approved delegated decision makers or individual Council Transport Delivery Board(s)/Infrastructure Board/Executive Board(s)/Cabinet as appropriate.

Risk management strategy

8.41 Risks are tracked in accordance with the both Council's corporate risk management principles, which draw upon the PRINCE2 methodology. The Financial Case, and our appended Financial Case spreadsheet (see Appendix G) includes a list of risks and quantified the impacts of those risks should they arise e.g. additional costs associated with ground conditions, software compatibility issues, additional traffic management works/coordination. Supplementary risks relating to the TCF programme have been highlighted here. They are categorised by type (comprising five kinds: political, technical, delivery, financial and legal). The corporate risk strategy requires the identification and recording of risks, an evaluation of their likelihood and any mitigation actions. This approach ensures that all risks are captured and processed in a consistent manner.

8.42 A risk register for the Derby-Nottingham TCF programme is included in Table 8-3. Without mitigation, these could result in increased costs to the scheme, reductions in the quality of outputs and slippages in timelines, all impacting the overall benefits and outcomes the bid seeks to deliver.

8.43 There are three significant risks relating to the TCF programme:

1) **Council Approval required for Mass Transit partnership/ Joint Venture arrangements (Theme/Component Dii)**. These political risks could result in the project being undeliverable within the TCF timescales, if approval and endorsement is not received. The risk will be mitigated by working with local members and Portfolio Holders through continued engagement to ensure support for the scheme.
2) **Operating model/operating cost for Mass Transit/ Park & Ride system not yet established (Theme/Component Dii)**. This delivery risk may occur should there be a lack of market interest making the project undeliverable. The risk will be mitigated through early engagement with the market, by undertaking a soft market test to better inform our specification prior to undertaking procurement.
3) **Ongoing revenue costs for future maintenance**. This financial risk may be realised if ongoing additional costs to schemes present themselves leaving the long-term benefits not being realised. This risk will be mitigated through early identification of funding requirements/sources and future liabilities. Concession arrangements (where the ongoing costs are funded by the supplying Concessionaire) will be sought alongside establishing MoU arrangements, and Council sources of funding should they be needed to mitigate this risk.

8.44 Further issues and challenges can arise as the projects develop and their impacts, and any subsequent action to manage them, will be discussed between the Project Leads and Programme Manager at the earliest opportunity after the issue has been identified. Issues are to be recorded (utilising a Risks, Issues, Actions and Decisions (RIAD) log) by the Programme Manager as they arise and reported to the Joint Derby-Nottingham Mobility Programme Board and Transport Delivery Board in Nottingham and the Infrastructure Board in Derby as part of the on-going programme reporting and monitoring processes.

8.45 Table 8-3 details a high-level programme and project-specific risk register with mitigation measures.

Table 8-3: Risk register

Risk	Type	Probability 1=Low 10=High	Impact	Effect	Strategy	Risk Resolution plan	Risk Owner	Timing
Programme Level Risks								
Political Change (local and national)	Political	4	6	Change in National Government delays TCF Programme Change in local priorities affects scheme delivery	Continue to monitor	Engage with political representatives throughout the programme	Programme Board	2019/20 – 2022/23
Reduced funding from DfT	Financial	4	4	Inability to deliver full programme	Prioritise projects to be delivered	Schemes are scalable – low medium and high packages included in final bid	Programme Manager	2019/20
Higher funding from DfT	Financial	4	4	Inability to manage and deliver programme	Engage additional staff resource	Increase scale and value of packages	Programme Manager	2019/20

Risk	Type	Probability 1=Low 10=High	Impact	Effect	Strategy	Risk Resolution plan	Risk Owner	Timing
Lower than anticipated match funding	Financial	3	3	Inability to deliver full programme	On-going discussion with delivery partners	Match funding to be confirmed in writing as part of bid submission	Programme Manager	2019/20
Unforeseen contract delivery/cost rises	Financial	3	8	Inability to deliver full programme	Develop scalable proposals	Build contingency into cost profile	Programme Manager	2019/20 – 2022/23
Failure to secure internal approvals to accept funding award	Legal	2	5	Delay in commencement of programme delivery	Agree reporting timescales with Constitutional Services	Liaise with Legal, Procurement and Finance representatives and Portfolio Holders if bid successful	Programme Manager	2019/20
Lack of resources to design/deliver programme	Delivery	4	4	Inability to meet delivery timescales	Develop procurement strategy and resource plan	Hold delivery workshop involving legal, procurement and DLO. Seek external expertise if required	Programme Manager	2019/20

Risk	Type	Probability 1=Low 10=High	Impact	Effect	Strategy	Risk Resolution plan	Risk Owner	Timing
Failure to meet Stakeholder expectations	Delivery	2	3	Negative publicity Lower than anticipated take up on project completion	Early engagement with key stakeholders	Establish communications plan	Programme Manager	2019/20 – 2022/23
Scheme Level Risks (Multiple Projects)								
Lack of political support for scheme delivery	Political	3	4	Lack of buy-in at local level Negative publicity	Engage with political representatives throughout the project lifecycle	Develop communications plan	Project Manager	2019/20 – 2022/23
Lack of public support for scheme delivery	Delivery	3	3	Lack of buy-in at local level Negative publicity	Provide updates throughout the project lifecycle	Develop communications plan Utilise social media	Project Manager	2019/20 – 2022/23
Objections from Stakeholder or Consultee	Delivery	3	3	Lack of buy-in at local level Negative publicity	Provide updates throughout the project lifecycle	Develop communications plan Utilise social media	Project Manager	2019/20 – 2022/23

Risk	Type	Probability 1=Low 10=High	Impact	Effect	Strategy	Risk Resolution plan	Risk Owner	Timing
Delay in obtaining required consents from external delivery partners	Legal	4	7	Delay in commencement of project delivery	Early engagement with delivery partners	Ensure requirements and timescales are built into the project plan	Project Manager	2019/20 – 2022/23
Stakeholder issues between key delivery partners	Delivery	3	4	Project delivery delayed/failure	Early engagement with delivery partners	Set out terms of reference/MoU for delivery	Project Manager	2019/20 – 2022/23
Coordinating delivery with adjacent schemes	Delivery	2	5	Potential delay in project delivery which impact on wider programmes	Ensure coordinated delivery programme	Hold project interface meetings to manage project delivery	Project Manager	2019/20 – 2022/23
Lack of response to tender opportunities	Delivery	3	3	Best value may not be achieved	Ensure early engagement with market	Agree delivery strategy with procurement Establish clear scheme requirements in tender documentation	Project Manager	2019/20 – 2022/23

Risk	Type	Probability 1=Low 10=High	Impact	Effect	Strategy	Risk Resolution plan	Risk Owner	Timing
Lack of Contractor Resource availability	Delivery	3	3	Best value may not be achieved	Ensure early engagement with contractors	Agree delivery strategy with procurement Establish clear scheme requirements and early contractor engagement	Project Manager	2019/20 – 2022/23
Land required to deliver schemes not in NCC/DCC ownership	Legal	3	7	Project undeliverable Additional cost	Early engagement with land owners	Develop land acquisition/ agreement strategy Review alternative options if land unavailable	Project Manager	2019/20 – 2022/23
Unforeseen ground / site conditions/utilities	Delivery	3	5	Additional costs and potential delay	Utilise existing local knowledge	Undertake trial hole/site investigation where appropriate	Project Manager	2019/20 – 2022/23

Risk	Type	Probability 1=Low 10=High	Impact	Effect	Strategy	Risk Resolution plan	Risk Owner	Timing
Ecological surveys show species/habitat work required.	Delivery	2	4	Potential delay in project delivery Additional cost	Surveys to be conducted early in the programme allowing time for mitigation to be programmed	Advice from ecological consultants will be taken into account and implemented Programme and monitor into timescales	Project Manager	2019/20 – 2022/23
Cost of consultancy / in-house engineering team support (signal design, etc.)	Delivery	5	5	Additional cost Best value may not be achieved	Develop detailed design to understand support required	Utilise existing frameworks to ensure best value Consider joint tendering with other schemes	Project Manager	2019/20 – 2022/23
Construction works negatively impact on other road/PT/public realm users	Delivery	3	6	Increased congestion Negative publicity	Early engagement with Local Highway Authority/Highways England	Ensure required permits sought in timely manner Develop communications plan	Project Manager	2019/20 – 2022/23

Risk	Type	Probability 1=Low 10=High	Impact	Effect	Strategy	Risk Resolution plan	Risk Owner	Timing
Planning permission not secured	Delivery	2	3	Project undeliverable Additional cost Negative publicity	Work with Local Planning Authority	Consider formal pre-application advice if likely to be controversial	Project Manager	2019/20 – 2022/23
Planning permission for sites we don't currently own	Delivery	3	6	Project undeliverable Additional cost Negative publicity	Work with Land Owner, Stakeholders and Local Planning Authority	Work with Land Owner and consider formal pre-application advice, if likely to be controversial	Project Manager	2019/20 – 2022/23
Ongoing revenue costs for future maintenance	Financial	5	8	Additional cost Long term benefits not realised	Early identification of funding requirements/sources and future liabilities	Seek concession opportunities via procurement Identify revenue sources in council budget Set out terms of reference/MoU for future responsibilities	Project Manager	2019/20 – 2022/23

Risk	Type	Probability 1=Low 10=High	Impact	Effect	Strategy	Risk Resolution plan	Risk Owner	Timing
Scheme Specific Risks								
Works being undertaken outside of Local Authority areas (County Councils) (Theme/Component Bi, Biii)	Delivery	2	5	Reduced scope/ unable to deliver full scheme	Early engagement with delivery partners	Utilise joint working as part of the D2N2 LCWIP	Project Manager	2019/20 – 2022/23
Issues with anti-social behaviour/ vandalism (Theme/Component Bii)	Delivery	4	7	Project fails	Transfer risk to private sector through procurement	Evaluate security measures and mitigation strategy as part of the tender exercise	Project Manager	2019/20 – 2022/23
New technology is not compatible with existing systems (Theme/Component Biii)	Delivery	2	3	Systems to not function Benefits not achieved	Early engagement with public transport operators and universities	Co-development with key stakeholders to understand software requirements Lessons learned from delivery of tranche 1 schemes	Project Manager	2019/20 – 2022/23

Risk	Type	Probability 1=Low 10=High	Impact	Effect	Strategy	Risk Resolution plan	Risk Owner	Timing
Lack of buy-in from public transport operators (Theme/Component Biii)	Delivery	1	6	Project undeliverable Benefits not achieved	Early engagement with public transport operators	Set out terms of reference/MoU for how project will proceed	Project Manager	2019/20 – 2022/23
Development of specification for data brokerage system in early stages (Theme/Component Biii)	Technology	3	4	Project undeliverable Benefits not achieved	Early engagement with delivery partners	Set out terms of reference/MoU for how project will proceed		
Inadequate power supply (Theme/Component Bv)	Technology	3	3	Additional costs Delivery unviable	Ensure early engagement with WPD	Develop implementation strategy with WPD to determine full implications and costs and alternative delivery locations.	Project Manager	2019/20 – 2022/23

Risk	Type	Probability 1=Low 10=High	Impact	Effect	Strategy	Risk Resolution plan	Risk Owner	Timing
Delay in approval of wayleaves and hosting agreements (Theme/Component Bv)	Legal	4	4	Preferred locations undeliverable Additional costs	Early engagement with land owners	Continued engagement with all parties to progress.	Project Manager	2019/20 – 2022/23
Grant funded infrastructure not delivered as required (Theme/Component Cvi)	Delivery	2	2	Best value not be achieved	Manage through funding agreement	Transfer risks for scheme delivery to participating organisation Include clawback provision for failure to meet grant conditions	Project Manager	2019/20 – 2022/23
Discovery of archaeological remains Discovery of archaeological remains (Theme/Component Di)	Delivery	3	8	Additional costs and potential delay	Utilise existing local knowledge to highlight high risk locations	Engage with archaeology team Undertake ground investigation	Project Manager	2019/20 – 2022/23

Risk	Type	Probability 1=Low 10=High	Impact	Effect	Strategy	Risk Resolution plan	Risk Owner	Timing
Council Approval required for Mass Transit partnership/ Joint Venture arrangements (Theme/Component Dii)	Political	6	9	Project undeliverable in TCF timescales Project fails	Work with local members and Portfolio Holders	Continued engagement to ensure support for the scheme	Project Manager	2019/20 – 2022/23
Operating model/operating cost for Mass Transit/ Park & Ride system not yet established (Theme/Component Dii)	Delivery	6	8	Lack of market interest Project undeliverable	Early engagement with market	Undertake soft market test Develop appropriate procurement strategy	Project Manager	2019/20 – 2022/23

Stakeholder management

8.46 Table 8-4 lists the wider group of stakeholders and their involvement in the TCF programme. Coordination of input, consultation and feedback will be sought from these groups on a regular basis. Discussions have already taken place with stakeholders as part of the development of this bid, details of which are included in Section 3.6 of the Strategic Case.

8.47 This framework of stakeholder management and engagement will be continued throughout the programme to inform the communications and dissemination activities. Offering a flexible, collaborative approach, our work will be directed to involving and communicating with stakeholders to become more interested if it can add to the success of the project.

Table 8-4: Wider stakeholders and their involvement in the TCF programme

Stakeholders	Involvement
D2N2 Investment Board	Provides linkages with the D2N2 Strategic Economic Plan including business representation.
Public Transport Integration Board (PTIB)	The PTIB is made up of senior officers of the council, the local bus, coach and tram operators. The purpose of the group is to set the strategic vision and action plan for investment in public transport for the area.
Bus Quality Partnerships	Coordination of the bus quality partnership initiatives, which are made up of the local bus operators. The purpose of the groups are to coordinate public transport provision and support the delivery of bus priority measures, electronic information, integrated ticketing, services and interchange of modes.
Robin Hood Operators Group	Public transport operator and stakeholder partnerships that oversees the work of the bus partnership and multi-operator smart-ticketing. Groups have been instrumental in the co-development of the projects and will be key delivery partners
Transport Focus	Represent transport user interests and will be interested in the delivery of public transport interventions.
East Midlands Airport Transport Forum	This forum considers access issues for employees and passengers to East Midlands Airport and ways of encouraging sustainable travel aligned with the Airport masterplan.

Stakeholders	Involvement
East Midlands Gateway Sustainable Transport Group	Group looking at sustainable access to the East Midlands Gateway development area.
Disability Inclusion Groups	Represent Nottingham's disabled community and support groups. Have helped in the development of projects and will be consulted continuously to ensure disabled accessibility to transport is supported and not disadvantaged by the proposed schemes.
Neighbourhood Managers	Coordination of council delivery within local areas, liaising with community representatives and the public.
Local Access Forums	The Local Access Forums are independent advisory bodies set up in 2004 under Section 94 of the Countryside and Rights of Way Act 2000. Their role is to assess the extent to which local rights of way networks meet the present and likely future needs of the public, to assist Councils in developing and implementing its plans and policies and delivering improvements to the walking, riding and cycling network.
Greater Nottingham Cycle Development Group	Bi-monthly meeting which seeks to influence cycling interventions, engage in the development of cycling strategy, infrastructure and service, and to support projects.
Nottingham EV Owners Club	Following the award of the Go Ultra Low City funding, a number of EV drivers have gradually reached out to support initiatives and participate in organised vehicle showcases. As a result a number of drivers have formed a EV Owners Club currently with over 150 members with the aim of organising events, meet ups and encouraging the growth of EV ownership. The Owners Club are supportive of the expansion of the D2N2 public charge point network.

Communications and dissemination strategy

8.48 A comprehensive communications and dissemination package will be developed utilising both Councils' Keep Nottingham Moving and Derby Connected communications collateral and expertise to develop marketing and promotion campaigns. Table 8-5 describes the potential communication and dissemination activities to provide updates/progress on the projects to internal colleagues, partners, wider stakeholders and the general public/businesses.

Table 8-5: Communications matrix

Communications triggers and activities	Communication / Engagement activity														
	Internal			Partner			Wider Stakeholder						General Public		
	Internal council channels e.g. Intranet, all colleague emails, plasma screens	SRO/Joint Board	Quarterly progress meetings	Monthly newsletters	Participation in partner events	Council website/ Partner websites	Events and workshops	Community of Practice	Regional governance	Media events/day	Case studies/fact sheets/ testimonials	Letters/leaflets	Press releases	Local and national media broadcasts (TV/radio)	Social media activity (twitter/facebook/ youtube)
Raising TCF profile	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
National/DfT announcements regarding TCF	■	■	■		■	■	■		■					■	
Scheme launch/openings	■	■	■	■		■			■	■	■	■	■	■	■
Scheme completions	■	■	■	■		■					■	■	■	■	■
Scheme successes/best practice	■	■	■	■	■	■	■	■	■	■	■		■	■	■
Delivery partner activities	■	■	■	■	■	■			■	■	■	■		■	■
Other activity based upon (local authority/third party comms)		■												■	
National/local TCF events		■	■	■		■		■			■			■	
Quarterly progress updates		■	■												
Annual DfT reporting		■	■			■		■	■						
Negative Press Coverage		■													

8.49 Individual projects are likely to be subject to consultation and their own communications / stakeholder management plan - particularly larger projects or packages of projects focused around specific modes of travel (e.g. cycle network improvements).

Monitoring and evaluation

8.50 An outline evaluation plan is presented in this section. It is recognised that this will be co-developed into a full evaluation plan with the DfT colleagues, post-funding award.

Logic map development

8.51 The logic maps (included in Appendix I) have been developed by consulting with key internal and external stakeholders to arrive at a consensus as to how the programme will achieve its stated objectives and those of the TCF fund. Initially, the logic maps and supporting tables, were drafted by the Councils' evaluators and then subsequently refined by other key internal and external stakeholders.

8.52 The 'Theory of Change' articulated for each of the four logic maps has been strengthened by individual mechanisms of change inserted at key points to explain why particular linkages occur. A series of tables are included which identify these mechanisms for change and the exogenous contextual factors which could impact on

the efficiency of the mechanisms. The also identify which contexts may impact on which mechanisms and describe which indicators can be used to determine to what extent these mechanisms are active.

8.53 The four logic maps are chronological in nature and identify the stages and linkages flowing from the initial context to the inputs, outputs, outcomes and eventual longer-term impacts. They also show which outcomes and impacts contribute towards the Derby-Nottingham TCF objectives and the TCF fund objectives. The key outcomes for achieving these objectives are highlighted.

8.54 The logic maps are each framed around the following four desirable outcomes of the programme, rather than the four investment Themes (A – D) / three funding Packages (Low, Med, High) defined elsewhere in this SOBC:

- Encouraging Active Travel
- Public Transport Improvements
- Enhancing Electric Travel Options
- Public Realm/City Centre Access Improvements

8.55 This approach was taken to avoid repetition as each of the TCF programme Themes cross-cuts several of the above outcomes. The four Themes which make up the TCF programme are fully described elsewhere in this submission, and are referenced in the outputs within each of the four logic maps, as appropriate.

8.56 The mechanisms which enable the changes required to move from outputs to outcomes and impacts have been integrated into the logic maps. The mechanisms that have been identified try to balance the need for them to be defined and discrete with recognition, that if they were broken down into the smallest units, there could be double or triple the number. Thus, individual mechanisms occur at more than one place within the map. In general, the mechanisms have been inserted between outputs, outcomes and impacts to explain how each step has been achieved. The exception to this is the Public Transport logic map where no mechanisms have been provided between the outputs and initial outcomes. This was to prevent the logic map from becoming too cluttered and also because the logic is largely self-explanatory and they are not required to understand the map.

8.57 The linkages between the logic maps are also illustrated with the to and from 'oval' symbols. For example, the outcome 'Increase in cycling trips to the Nottingham city centre' on the Public Realm/City Centre Access Improvements logic map is relevant to the Active Travel logic map, in that it contributes to an overall increase in cycling and thus a link is provided between the two maps at the appropriate point in each 'theory'.

8.58 It is also important to note that the above is an initial approach and that, upon DfT approval, the logic maps will be reviewed, redeveloped and optimised, and the data collection methodologies validated, if necessary, to give the appraisal key focus.

Proposed evaluation approach

8.59 The logic maps, described above, provide a framework for evaluation as well as supporting the strategic business case. The evaluation will need to establish the impact of the programme as a whole, as well as the contribution made by each individual package element. The use of detailed logic mapping points the overall evaluation approach towards adopting the Theoretical Evaluation, Theory of Change approach (ToC), however, this will be discussed with DfT as part of the post bid co-development.

8.60 This approach is suited to the TCF programme as it is a diverse package of measures which will be implemented over a number of years. Such interventions are highly suited to Theoretical Evaluation approaches as they take into account temporal contextual change, as well as allowing for causal attribution, i.e. they demonstrate to what extent observed change is due to the implementation of an intervention rather than exogenous factors. The suggested approach builds on the traditional application of the ToC approach and enhances it by inserting individual mechanisms of change into the logic maps at key points to explain why particular linkages occur. The ToC approach thus identifies a theory of change for the intervention being evaluated. which will show each step on the causal pathway from scheme implementation to the eventual desired impacts, and the mechanisms explain how progress from one step to the next is to be achieved.

8.61 This evaluation approach provides a more detailed explanation of change. Contextual differences could make exporting the approach more or less effective than that demonstrated in Derby-Nottingham and thus, an understanding of the interaction of the mechanisms by which change is achieved and the impact of context on their effectiveness, is crucial in the design of future similar interventions.

8.62 A range of indicators have been identified which are capable of testing the four TCF logic maps and, thus, track progress towards the Derby-Nottingham TCF package objectives. The indicators will also be analysed with a view to assessing the value for money of the scheme and are itemised and cross referenced to the relevant objectives, as well as elements of the logic mapping.

8.63 The change observed in the indicators will be subject to further research to take into account exogenous changes which could impact the ability of the package to meet its objectives and thus to determine if the observed changes can truly be attributed to the

package. While this will need to be considered more carefully in the evaluation plan and co-developed with the DfT, techniques that could be employed to achieve this with schemes of this nature are as follows:

- **Quasi experimental approaches** – indicators in the area subject to this scheme are compared to those from other similar urban areas or other parts of the D2N2 area isolated from the scheme.
- **Time series analysis** – subject to data availability, it should be possible to use a simple time series model to establish a statistical link between a relevant dependent variable and other independent variables, including one which acts as an intervention variable.
- **Direct interview surveys of public transport users** – to ask if they have changed their travel behaviour over the evaluation period and why. This will be essential to evidence improved access to employment and attribute any observed mode switch to the scheme.
- **A comparison of actual change** – as measured by wider transport trends, public transport patronage, and other metrics that may be influenced by TCF programme interventions, according to the logic map.

8.64 The evidence from one or more of the above research methods, together with the changes to the indicators, will be triangulated to generate robust conclusions as to whether the package has met its objectives, which will then be detailed in the annual monitoring reports and the final five year after scheme evaluation report.

Programme indicators and monitoring framework

8.65 In order to test the four TCF logic maps and track progress towards the three Derby-Nottingham TCF objectives, a basket of indicators has been identified. These indicators are also intended to measure the activation of the mechanisms which facilitate the causal pathway articulated within the logic maps. Table 8-6 itemises these indicators, also showing the data source and providing a brief data collection methodology.

Table 8-6: Proposed Performance Indicators for monitoring

Ref	Performance Indicators	Data source	Summary of data collection methodology
I_1	Stakeholder surveys: public transport users	NCC Highway Metrics team	Post implementation surveys delivered by a combination of direct interview, hand out questionnaires and e-survey. They will include questions relating to mode switch, connectivity, electric travel and accessibility to employment sites.
I_2	Stakeholder surveys: Cycle corridor users (cyclists and pedestrians)	NCC Highway Metrics team	
I_2a	Hire bike/e-bike user surveys	Service providers	
I_3	Stakeholder surveys: low income groups	NCC Highway Metrics team	
I_4	Stakeholder surveys: visitors to the city centres	NCC Highway Metrics team	
I_5	Stakeholder surveys: e-bike Users	NCC Highway Metrics team	
I_6	Stakeholder surveys: EV users	NCC Highway Metrics team	
I_7	Stakeholder surveys: businesses in areas benefitting from TCF measures	NCC Highway Metrics team	This will be a direct interview survey of business representatives in key locations such as city centres and East Midlands Gateway. The survey will aim to collect evidence for improvement to accessibility for the appropriate workforce and accessibility and connectivity of the employment site in general
I_8	Employment and unemployment data	Office for National Statistics	Monthly data published by Department of Work and Pensions
I_9	Number of bikes made available for hire	NCC Transport Strategy	Council records
I_10	Number of bike hires	NCC Transport Strategy	Council records

Ref	Performance Indicators	Data source	Summary of data collection methodology
I_11	Average journey time/delay per vehicle mile	TeletracNavman data from DfT	Calculated from TeletracNavman GPS data supplied by the DfT and by data calculated from ANPR data and Google maps
I_12	Journey time reliability	TeletracNavman data from DfT	
I_13	Modelled changes in NO2, PM2.5 and CO2 emissions	NCC Transport Strategy	Emissions savings due to the TCF interventions will be calculated based on readings from 5 real time air quality analysers, observed mode switch from the stakeholder surveys, traffic flow and composition and mode share surveys at key locations around Derby and Nottingham.
I_13a	NO2 and PM2.5 levels from the NCC and DCC air quality (AQ) monitoring network	NCC Transport Strategy	Both authorities monitor AQ across their respective areas using a mixture of measuring devices, including diffusion tubes and real time AQ analyser units
I_14	Number and % of ULEVs registered in the Derby-Nottingham travel to work area	Office for National Statistics	Quarterly data published by DfT
I_15	Mode share of travel across cordons in Derby and Nottingham	NCC Highway Metrics team	Annual manual count surveys of people movements across defined cordons in Derby and Nottingham by mode of travel
I_16	Bespoke before and after mode share surveys in corridors benefitting from TCF interventions	NCC Highway Metrics team	Manual count surveys of people movements across defined cordons by mode of travel. Surveys of FMC businesses employees.
I_17	Number and cost of e-bikes available for hire	Appointed service provider	Hire data records

Ref	Performance Indicators	Data source	Summary of data collection methodology
I_18	Before and after cycle and pedestrian counts around the locations relevant to the TCF T2 schemes	NCC Highway Metrics team	Manual and automatic counts of cyclists and pedestrians at council monitoring sites
I_19	Before and after traffic flows in locations relevant to the TCF T2 schemes	NCC Highway Metrics team	Manual and automatic counts of traffic at council monitoring sites
I_20	Number of e-bike hires	Appointed service providers	Hire data
I_21	GVA by local authority area, sectoral analysis	Office for National Statistics	Annual data published by ONS
I_22*	Productivity metrics by local authority area	Office for National Statistics	Annual data published by ONS, analysed by council Economic Research officer
I_23	Health episodes related to poor air quality	Public Health England	Health data
I_24	Sickness records from partner employers	Derby and Nottingham City Councils	Sickness records held by councils
I_25	Estimate of car trips saved, based on observed mode switch	NCC Highway Metrics team	Analysis of mode share and stakeholder user surveys to calculate change
I_26	Public transport patronage on key bus and tram services	NCC Public Transport team and bus operators	Passenger data analysis
I_27	Number of additional P&R spaces	NCC Public Transport team	NCC records
I_28	Average bus journey times on routes subject to TCF Interventions	Bus operators SIRI Stop Management API feed	Bus operators NCC Public Transport team
I_29	Before and after footfall between PT hubs and city centres	NCC Highway Metrics team	Manual or automatic counts of pedestrians

Ref	Performance Indicators	Data source	Summary of data collection methodology
I_30	Inward Investment case studies in areas served by the TCF interventions	Invest in Nottingham (IIN) & Derby	Compiled by IIN officers on standard proformas
I_31	Before and after accident and casualty rates among pedestrians and cyclists	NCC and DCC Road Safety teams	Standard data from Police records
I_32	Km of cycle corridors delivered	NCC/DCC records	This will be recorded as part of the project management process
I_33	Travel surveys of those businesses receiving the Cycle Infrastructure Grants	NCC and Derby Travel Planning teams	NCC has a standard survey that is completed as part of this service
I_34	Observed journey time savings for ULEVs on stretches of routes featuring ULEV lanes	NCC Highway Metrics	Manual survey of ULEV lanes
I_35	EV charge point usage measures	BP Chargemaster	This data is supplied by BP Chargemaster
I_36	Inward Investment Indicators	Invest In Nottingham (IIN) and Marketing Derby	Inward investment enquiries to IIN and the number and scale of lettings in the commercial property markets supplied from commercial estate agents through IIN and Marketing Derby

**It is recognised that it will be important to estimate actual changes in productivity based on available time series data and the evaluation team will work with the DfT to determine the most appropriate method to achieve this.*

8.66 Table 8-7 presents a monitoring framework by showing which indicators track progress towards each objective. This is accompanied by an account of the rationale for choosing the indicators relevant to each objective.

Table 8-7: Monitoring Framework

Programme Objectives	Indicator ref.	Performance indicators relevant to objective
O1 – Contribute to strong foundations for sustainably connected future growth	I_1 to I_7	Evidence of enhanced connectivity from stakeholder surveys, particularly amongst low income groups
	I_21	GVA
	I_9	Number of cycles available for hire
	I_17	Number of e-bikes available for hire
	I_10	Number of cycle hires
	I_20	Number of e-bike hires
	I_32	Kilometres of cycle corridors provided
	I_31	Before and after accident and casualty rates for pedestrians and cyclists
	I_28	Average bus journey times on routes subject to TCF interventions
	I_26	Public transport patronage on key bus and tram services
	I_27	Number of additional P&R spaces
	I_29	Before and after footfall between PT hubs and city centres
	I_11	Average journey time/delay per vehicle mile
	I_12	Journey time reliability
	I_15	Mode share of travel across cordons in Derby and Nottingham
	I_16	Bespoke before and after mode share surveys in corridors benefitting from TCF interventions
	I_33	Travel surveys of those businesses receiving the Cycle Infrastructure Grants
	I_30	Inward Investment case studies
	I_8	Employment and unemployment data
	I_11	Average journey time/delay per vehicle mile

Programme Objectives	Indicator ref.	Performance indicators relevant to objective
O2 – Alleviate transport pressures from recent growth and past under investment	I_12	Journey time reliability
	I_25	Estimate of car trips saved based on observed mode switch
	I_15	Mode share of travel across cordons in Derby and Nottingham
	I_16	Bespoke before and after mode share surveys in corridors benefitting from TCF interventions
	I_19	Before and after traffic flows in locations relevant to the TCF T2 packages
	I_1 to I_6	Evidence of mode switch from stakeholder surveys and accessibility improvements for employment sites
	I_13	Modelled reduction in NO2, PM 2.5 and CO2 based on observed mode shift
	I_21	Air quality measures from Derby and Nottingham AQ monitoring network
O3 – Improve access to employment, productivity and inclusivity	I_1 to I_7	Evidence of enhanced access to employment from stakeholder surveys, particularly amongst low income groups
	I_22	Productivity measures by local authority area
	I_21	GVA
	I_30	Inward Investment case studies
	I_18	Before and after cycle and pedestrian counts around the locations relevant to the TCF T2 Packages
	I_19	Before and after traffic flows in locations relevant to the TCF T2 Packages
	I_11	Average journey time/delay per vehicle mile
	I_12	Journey time reliability
	I_15	Mode share of travel across cordons in Derby and Nottingham

Programme Objectives	Indicator ref.	Performance indicators relevant to objective
	I_16	Bespoke before and after mode share surveys in corridors benefitting from TCF interventions
	I_26	Public transport patronage on key bus and tram services
	I_8	Employment and unemployment data
	I_29	Before and after footfall between PT hubs and city centres
	I_23	Health episodes related to poor air quality
	I_24	Sickness records from partner employers

8.67 The indicators specified for measuring progress towards each objective can be summarised as follows and it can be seen that they are designed to test the theory articulated in the four logic maps.

8.68 Indicators measuring levels of congestion and mode share for public transport and active modes are important for tracking progress for all three objectives as they can only be achieved by promoting behavioural change towards more sustainable travel choices resulting in congestion constraint. Beyond this the choice of indicators reflects both the theory articulated within the four logic maps and the individual objectives. The stakeholder surveys have two key roles within the evaluation framework, firstly they contribute additional evidence to corroborate the observed changes to the time series/before and after data and, secondly, they provide attribution of cause and effect for the observed changes and the TCF interventions.

- Objective 1 – The suite of indicators measures how the interventions deliver additional capacity and options within sustainable modes of travel and thus achieve the key outcomes that facilitate sustainable connectivity. They measure both the quantity and usage of these interventions, because in order to enhance connectivity the infrastructure and services must not only be available, but must also be used. Following on from this, measures evidencing mode switch and an improvement in journey times and reliability demonstrate that the network conditions have improved, again contributing towards long term sustainability and connectivity. The three economic indicators, including GVA, provide evidence of economic growth which is inherent in this objective.
- Objective 2 – The indicators measuring progress towards this objective monitor changes to the undesirable impacts of economic growth and the accompanying

increased demand for travel; air quality, carbon emissions, travel by car and congestion.

- Objective 3 - The indicators chosen to track progress towards this objective test if there is evidence of improved connectivity between people and jobs and the ongoing implications for employment and productivity. Measures of congestion and mode switch support this by evidencing the mechanism that link this outcome and economic impact via labour force effects.

Monitoring and evaluation internal resources and expertise

8.69 Nottingham City Council will coordinate the monitoring and evaluation activities and has a proven in-house monitoring and evaluation capability having been responsible for numerous evaluation projects including two major evaluations for the Workplace Parking Levy (WPL) and the Nottingham Ring Road Improvement Scheme (NRRIS).

8.70 The WPL evaluation was based around a hybrid Theory of Change/Realistic Evaluation approach, but also used quasi experimental components and was conducted in partnership with Loughborough University with oversight from the DfT. The NRIS evaluation conformed to the DfT's Standard Monitoring as mandated for schemes of this value and outlined in the 2012 DfT Guidance, Monitoring and Evaluation Framework for Local Authority Major Schemes, published in September 2012.

8.71 Leading the coordination will be the Highway Metrics team with over 40 years' experience in delivering evaluations following both standard DfT guidance but also, in the case of the WPL, producing high quality evaluation projects based on bespoke evaluation frameworks satisfying academic standards of rigour.

8.72 A further consideration is that, given the experience and capabilities within the Highway Metrics Team, and as this is a joint bid with Derby City Council, the Highway Metrics Team will be able to offer monitoring and evaluation support to Derby City Council should that be necessary to fulfil the monitoring and evaluation requirements for this bid.

Monitoring and evaluation costs

8.73 The indicative monitoring and evaluation budget for the TCF proposal is £0.5 million over the evaluation period 2019/20 to 2022/23. This will cover programme monitoring and evaluation costs, alongside those for programme coordination, and has been built into the overall budgets for our Low, Medium and High investment packages. The indicative split by financial year is shown in Table 8-8.

Table 8-8: Programme coordination, monitoring and evaluation costs

Programme Coordination and Evaluation (£0.5 million)					
	2019/20	2020/21	2021/22	2022/23	Total cost
Programme monitoring and evaluation and programme coordination	£0.05 million	£0.10 million	£0.175 million	£0.175 million	£0.5 million

Dissemination to other stakeholders

8.74 The results of this evaluation will be disseminated to other local authorities via the Council and the Community of Practice. Further consideration will be given to dissemination to local businesses and citizens as the evaluation progresses.

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