

2.3.6.6 Freight

- Planned Supertram schemes, such as track replacement and tram units, will improve the network and increase capacity. The current Tram-Train project will improve connections to Rotherham, and further extension of this concept could benefit other Urban Centres, such as Barnsley, unlocking access to housing sites and employment opportunities.
- The tram network presents an opportunity to focus development around current and future mass transit lines. The Tram-Train Trial will improve access throughout the Rotherham-Sheffield corridor and to Sheffield City Centre. There is scope to extend the tram network to serve the Innovation District and to build patronage through incremental infrastructure delivery.

Freight Challenges

- Increasing road freight movements contribute to congestion and air quality issues in Urban Centres. Logistics is identified as a key growth sector, specifically at Markham Vale, The Dearne Valley and Doncaster Sheffield Airport / Doncaster iPort. There is a need to establish the infrastructure required to support the logistics sector and achieve the SEP growth target in this sector. The strategic road and rail networks carry significant amounts of freight with a range of specialist loads associated with manufacturing and high volumes associated with the large number of logistics and distribution hubs in SCR. These movements often have time critical schedules.
- Poor quality of Trans-Pennine road links limits the opportunity for freight movement.
- Delays on the national road network result in unreliable journey times and delay for freight operators, meaning loss productivity and presenting a constraint to the emergence of Industry 4.0.
- Gauge restrictions and conflict with passenger services present a constraint to growth of rail freight.
- Access to the Humber and Liverpool ports by road and rail from SCR is constrained.

Freight Opportunities

- The use of consolidation centres offers the opportunity to reduce road freight movements in Urban Centres, and increase the efficiency of the logistics sector. SCR has a growing logistics sector; Doncaster, The Dearne and Markham Vale are at the heart of this with well established distribution centres.
- A clearer strategy and proposition for expansion of the logistics sector would be beneficial. Improvements to the M1 and A1(M), trans-Pennine road links and the upgrade of the A63 near Hull through proposed Highways England schemes should improve road freight connectivity.
- Gauge enhancements will improve rail freight connections between Doncaster and the southern Humber Ports.
- There is scope for further improvements through TfN and the Northern Transport Strategy. This would include improving connections to the Panamax ports in Liverpool to allow movement of containerised freight by rail, and improving east-west road freight connectivity across the Pennines.

2.3.6.7 Aviation

Aviation Challenges

- Doncaster Sheffield Airport does not have a rail connection, and bus connections are infrequent. This constrains connectivity to and from the airport and surrounding Growth Area, and limits the UK market share the airport can capture, along with acting as a potential deterrent to inbound travellers. Both road and rail links to Manchester Airport are constrained in terms of reliability, capacity and frequency of train services.
- London's hub airports are relatively inaccessible by rail from the north.

Aviation Opportunities

- Doncaster Sheffield Airport is identified as a Growth Area for the engineering and aero-industry, alongside housing growth. The airport is also future-proofed for passenger growth.
- FARRRS, opened in early 2016, and will ensure greater connectivity to the airport, Growth Areas and Urban Centres. Delivery of the 2nd phase of FARRRS provides direct access to the airport. Doncaster Sheffield Airport can benefit from further improvements to surface access, including a new community rail station. Surface access improvements to Doncaster Sheffield Airport would benefit the wider SCR.

- Improvements to trans-Pennine connections through Highways England and Network Rail (Northern Hub) investment should enhance connectivity to Manchester Airport. This can be further improved through TfN schemes.
- HS2 will offer improved connections to Heathrow Airport via an interchange at Old Oak Common.
- Doncaster Sheffield Airport (DSA) has the opportunity to be a key freight-shipping airport in future years, providing those manufacturing goods in the region with a further route to market.

2.3.6.8 Smart Mobility: The Proposition

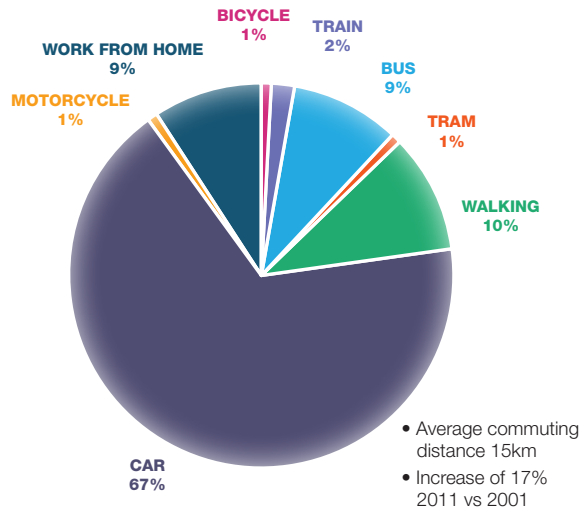
- Smart Mobility: Smart Mobility maximises the opportunities arising from increasing urbanisation, intelligent transport solutions, big data, open data and a behavioural shift to a sharing economy.
- Integrated Mobility Platform: The proposition is to create an SCR Smart Mobility Platform. This will bring together data from multiple sources such as South Yorkshire Intelligent Transport System (SYITS), service operators, in-vehicle telematics, apps and user feedback to allow for the design and operation of a Smart Mobility network, supported by the Internet of Things. Although the scale of interventions is likely to vary between city, town and village, the ethos of 'Smart Mobility' is linked to behavioural change and implementation of integrated and innovative local transport. Operating on a 'plug-in' basis, the open source platform would provide a centralised function for information, ticketing, payment and data collection and storage. The result would be a seamless and integrated Smart Mobility network across SCR, spanning all modes and complementing investment into traditional transport infrastructure.

- Infrastructure to enable low emission vehicles (including buses and freight): SCR recognise the future role that low emissions vehicles can play in providing efficient and sustainable journeys for private, passenger and freight trips. We want to ensure that we have the infrastructure to enable the operation of these vehicles and remain an attractive investment location for innovative investors. We will continue to work with private sector operators / businesses to explore the most viable technologies.
- Sustainable Infrastructure: Invest in technologies to reduce the environmental impact of vehicles where it is commercially beneficial and has the greatest impact. This will help to ensure that as the SCR economy grows, our places remain attractive to people. Advances in battery technology offer the promise of a marked expansion in the use of electric vehicles with a concomitant need to strengthen the vehicle recharging network in the City Region.

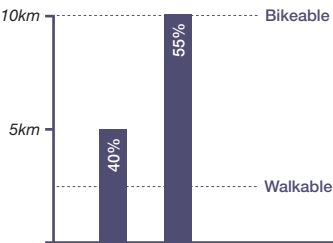
Transport

SCR CURRENT TRAVEL TO WORK

SCR Travel to Work Modal Share

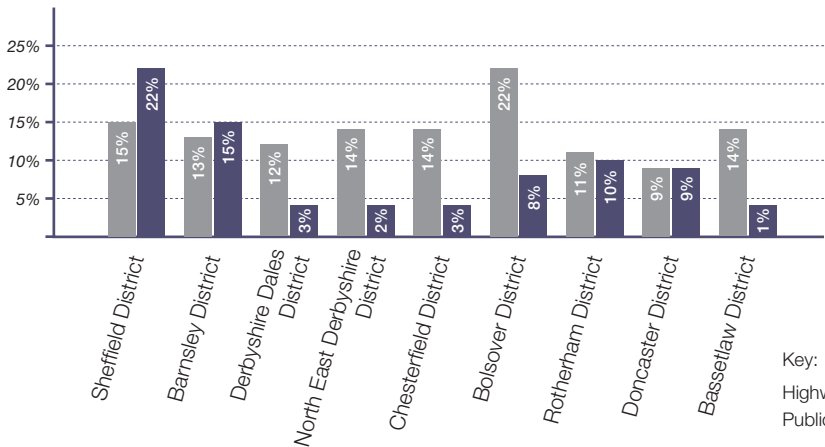


Distance of Journeys to Work Across SCR



- 25%** Contribution of transport to greenhouse gas emissions
- 27** Air quality management areas across SCR
- 300+** Premature deaths every year in Sheffield due to poor air quality

Projected Growth in Travel Demand



TRANSPORT CHALLENGES AND OPPORTUNITIES



2.3.7 Waste

Three authorities within the SCR have produced a Joint Waste Plan which provides a detailed planning strategy for waste management facilities over the next decade. SCR must build on these efforts and seek to achieve involvement and alignment with other authorities across the City Region. Emerging EU legislation on the circular economy means that SCR will seek to move up the waste hierarchy, pursue opportunities for exporting waste processing services and integrate with electricity and heat generation. Furthermore, the scope to increase energy recovery from waste both from the SCR and neighbouring LEP areas offers an opportunity to provide heat for homes and businesses - we will seek to maximise these opportunities.

Existing waste management facilities within SCR are provided by four waste bodies and their respective contractors, with facilities comprising traditional landfill disposal, to recycling, gasification, composting and energy recovery facilities.

Waste Challenges

- Waste management provision within SCR must respond to national drivers to reduce the level of waste reaching landfill and a European driver to reduce the levels of waste arising, or promote their re-use and recycling to deliver a 'zero waste economy.' Specifically, emerging EU legislation 'Circular Economy: Boosting Business, Reducing Waste' will require SCR to demonstrate how the value of materials and energy used in products in the value chain is maintained, by minimising waste and resource use.
- The SCR does not represent a single waste partnership area, with respective evidence base documents for Local Authorities being of varying ages. Limited coordination means that there is an existing evidence gap to management of future waste.
- Additional waste facilities will be required to address future growth needs and meet any emerging shortfall over the next ten years. Planned future facilities are set out in the figure opposite.

Waste Opportunities

- Encourage a shift in waste management behaviours and continue to move waste 'up' the waste hierarchy: it is anticipated that the scale of growth in municipal waste is likely to

be less pronounced through a shift in waste management behaviours.

- Ensure collaboration across waste authorities to review capacity requirements. Based on the future need requirements within emerging Local Plans, there is an opportunity to enter into a process of dialogue across waste authorities to ensure up-to-date capacity requirements across all waste types, including land fill provision, are maintained.
- Invest in next generation waste processing facilities that can not only handle the City Region's waste, but that of neighbouring areas. This would allow SCR to export waste management capability and skills, attract additional infrastructure investment, and integrate waste management with provision of electricity and heat energy to homes and businesses.
- New legislation may require a refreshed approach to waste management to achieve the 'circular economy loop'. This could result in an increase in skills development and business growth opportunities in the Green and Low Carbon Sectors, and continue to strengthen markets and supply chains for secondary raw materials.

Waste Management

WASTE TYPES

Municipal Solid Waste

Regular waste from non-industrial sources, such as residential homes, restaurants, retail centres and office buildings.



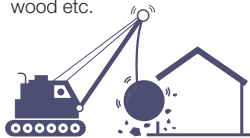
Commercial and Industrial Waste

Waste from manufacturing and service industries.



Construction and Demolition Waste

Primarily received from construction sites, including concrete, rebar, carpet, wood etc.



FUTURE DRIVERS

Waste Hierarchy



Emerging EU Legislation on Circular Economy and Closed Loop Waste Management

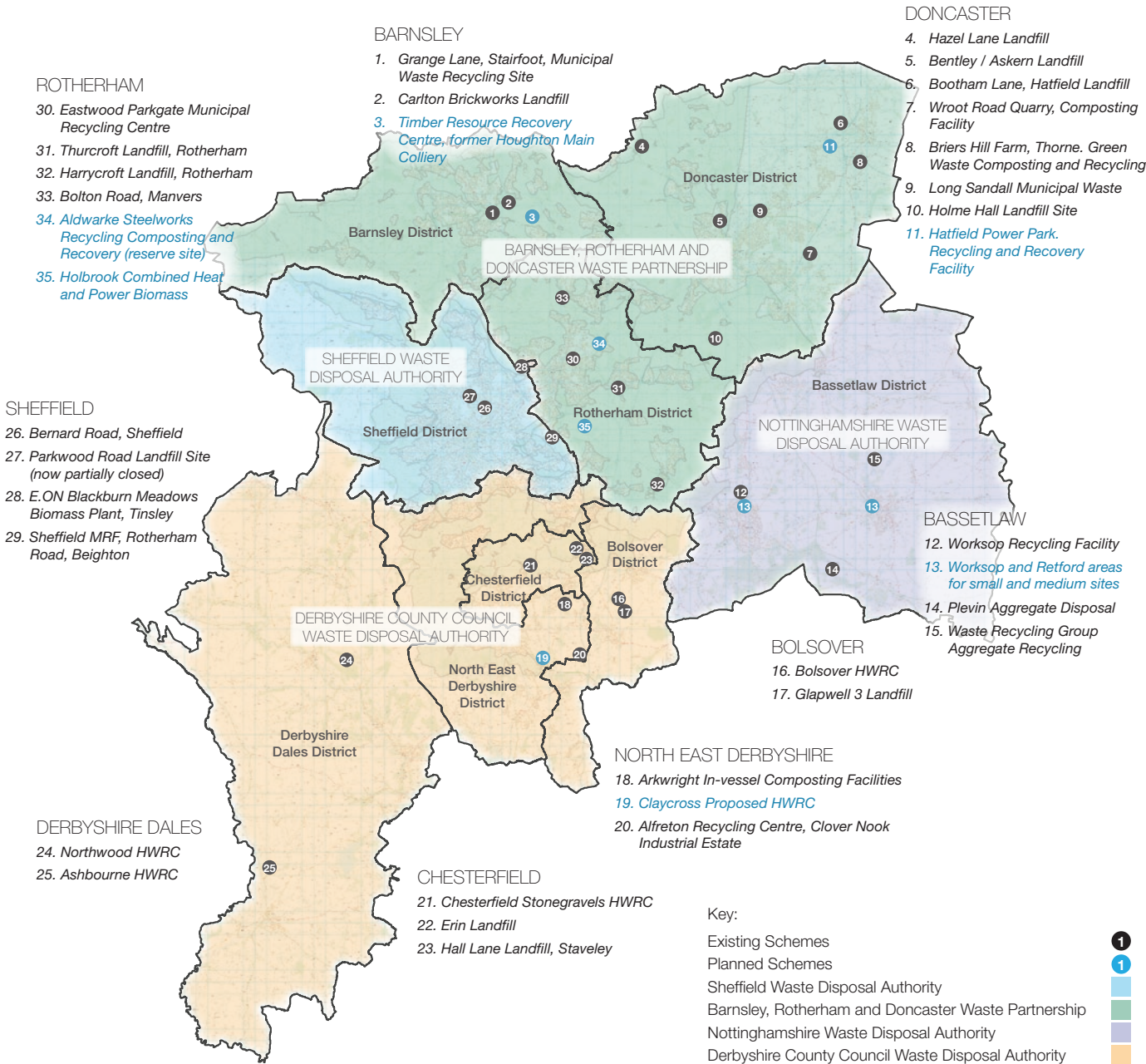
Legislation could require 70% municipal waste to be re-used and recycled by 2030, with landfilling of recyclable plastics, glass, paper and cardboard to be banned by 2030.



FUTURE REQUIREMENTS

- The Barnsley Doncaster and Rotherham Waste Plan identifies a need for 1 – 2 large scale commercial and industrial recycling, composting and waste treatment facilities with the potential need for additional capacity subject to changes to national targets and other related legislation over the next decade.
- Parkwood Springs is now partially closed (only accepting inert waste arising from construction). Residual waste is now taken to the Erin Landfill site in Chesterfield.
- Worksop and Retford, in Bassetlaw, have been identified as appropriate for small or medium waste sites.
- There are also a number of shortfalls in provision across Derbyshire.

EXISTING AND PLANNED WASTE MANAGEMENT INFRASTRUCTURE



2.3.8 Energy

SCR has an ambition to advance a Low Carbon Energy Strategy for the City Region, integrated with waste and utilities. In order to achieve this goal, SCR will seek to reduce its reliance on fossil fuels, boosting investor confidence by providing greater stability over energy costs. With approximately 12,000 additional jobs targeted within the low carbon sector, SCR will seek to invest in this area by considering ways to move towards a circular economy. By supporting national objectives on Climate Change, SCR can ultimately achieve greater security over our energy supply.

Sheffield City Region's long-term vision is to achieve energy resilience by actively pursuing opportunities for an efficient, economical and sustainable energy supply. The City Region is already advancing its approach towards greener growth and greater energy supply resilience.

A secure, affordable supply of energy is critical to the smooth functioning and competitiveness of the economy, and is closely correlated with economic output. A reliance on fossil fuels, together with supply side conditions in energy markets, leads to fluctuations in energy prices that can be damaging to the economic performance of an area. Without intervention, energy price volatility and issues of supply are forecast to worsen in future years.

In order for SCR to become more resilient and less affected by external fluctuations in the

energy market, there is a strong case for SCR to move towards a low carbon energy supply as well as shifting towards a circular economy. A low carbon industry is a key growth sector for SCR, and decarbonisation should be valued in the deployment of energy infrastructure.

Moving toward cleaner energy generation could bring the following benefits to SCR:

- Greater control over energy costs: This could provide both business and residents with greater stability, giving them confidence to invest, boosting the economy and supporting job and business growth.
- Low carbon sector growth: The SCR SEP sets a target for approximately 12,000 jobs in this sector by 2025.
- Moving towards a circular economy: Creation of an energy ecosystem that not only generates low carbon electricity, but other products such as heat, hydrogen fuel, food and waste processing.
- Contribute to addressing national challenges: Namely supporting the UK in meeting the requirements of the Climate Change Act (80% less CO₂ emissions by 2050, compared to 1990 levels), keeping the lights on by addressing the energy generation gap, and achieving greater security over our energy supply.

The following demonstrate examples of current best practice within SCR:

- The local authorities of Barnsley, Doncaster and Rotherham are working in partnership to reduce landfill and jointly manage waste generated by the three boroughs. The Partnership has secured £77.4m of Private Finance Initiative (PFI) funding from central government towards new facilities to deal with the treatment of leftover waste rather than send it to landfill. The Manvers waste facility processes and recycles or packages up waste to be sent to power stations to be burnt. In future, there is also the potential for other SCR authorities to come on board to further improve waste management across the City Region.
- Barnsley MBC's recently developed Energy Strategy (2015-2025) sets out the Council's case for greater investment in energy. Barnsley recognises that alongside other large organisations, it is a major consumer of energy and emitter of greenhouse gases. The Strategy therefore highlights a range of energy efficiency projects which aim to provide Barnsley with a number of economic, social and environmental benefits.

The SCR will build upon these examples of current best practice as well as create new and innovative ways to ensure sustainable energy generation over the coming decades.

Energy Challenges

- Government data shows that in 2013 Yorkshire and Humberside's non-domestic gas consumption was 35% higher than the national average and non-domestic electricity consumption was 14% higher. This is driven by high energy consuming industries (e.g. steel production and heavy manufacturing). Supply interruption and affordability are challenges to the resilience of our industrial and advanced manufacturing sectors.
- The Centre for Low Carbon Futures calculated that the 2011 SCR energy bill was £3.41 billion per year, and that this would grow to £4.59 billion by 2022 – a £1.18 billion increase. With the annual GVA output of SCR standing at approximately £28bn, energy costs constitute over 10% of economic output; a significant proportion.
- As is the case for most LEP areas, SCR largely consumes fossil fuels as its main source of energy, with an energy bill which could increase from £3.4bn per annum to £4.6bn per annum by 2022.³³ A high upfront capital cost of delivering energy efficient or low carbon infrastructure, uncertainty surrounding financial support and lack of financial consequences for failing to decarbonise present key challenges to the

delivery of energy infrastructure across the Urban Centres, Growth Areas and SCR as a whole.

- A lack of an overarching strategic approach towards delivery of energy infrastructure or attracting investment does limit opportunities for integration to take place.

Energy Opportunities

- There is an opportunity to capitalise on the low carbon energy market and meet the Mini-Stern Review Objectives for SCR, bring £3.7bn of investment into SCR, create 3,000 jobs and deliver an additional £147m of GVA every year.
- The industrial legacy of SCR provides opportunities to make use of grid connection points to feed in electricity generated from larger scale generation (e.g. biomass plants or solar farms). In addition, Eon's expansion of the district heating network to the Lower Don Valley offers further opportunity for import and export of heat energy generated from biomass, waste or other sources. Advances in capture and storage techniques may offer opportunity for a resurgence of the more traditional energy generation methods (e.g. coal and gas).

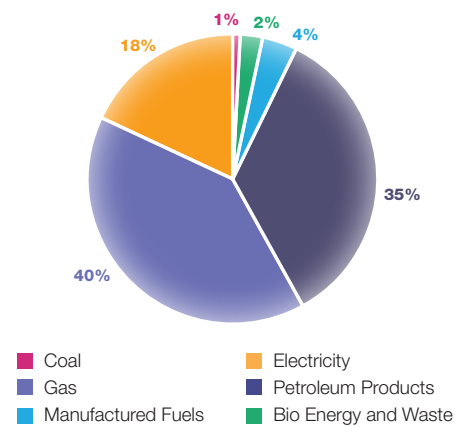
- Low-carbon energy generation can support decarbonisation across other sectors, such as the charging of electric vehicles or production of hydrogen fuel by electrolysis. A further opportunity could include the integration of energy generation investment with waste management, to address the dual challenge at a reduced cost. Consideration should be given to locating energy generation near to future users rather than uploading to the grid.
- There is an opportunity to secure a continued future for energy generation at the Trentside power stations of Cottam and West Burton, utilising their grid connections to deliver cleaner energy to the grid following the planned closure of the current coal fired power stations at these sites.
- Building on work already undertaken in the region, advance an integrated Low Carbon Strategy to identify suitable generation types, locations and necessary supply companies as well as more efficient methods of use, and support SCR in attracting investment from sources such as the Green Investment Bank, and private developers. The Energy Strategy will include the following:
 - Identify opportunities for low carbon projects across a number of technologies and sectors, and augment the world leading research and development by Universities and businesses in SCR.

³³ The Economics of Low Carbon Cities – A Mini-Stern Review for the Sheffield City Region (Gouldson et al, 2013)

- Identify suitable sites for new schemes, including the ability to connect to the existing electricity network and support that may be available through enabling infrastructure investment.
 - Set out smaller scale local energy projects that engage the local community.
 - Seek opportunities to expand the existing heat network and explore ways to develop such networks in Growth Areas and Urban Centres.
 - Encourage more energy recovery facilities which import waste streams from neighbouring regions and generate additional heat and power for the benefit of SCR.
 - Set out the approach to working with Government on the design of future incentives for renewables.
 - Promote greener growth through the following policy interventions:
 - Support Local Plan makers in setting the energy standards that SCR properties must conform to.
 - Promote SCR becoming a world leader in the creation of a zero-carbon built environment.
 - New buildings should contribute to the development of zero carbon infrastructure or generating their own energy through renewable sources, they should also be as energy efficient as possible through an incremental and structured ratcheting of energy efficiency standards.
 - Build energy schemes in to wider infrastructure proposals, including transport schemes.
- The Low Carbon Energy Strategy must be monitored and updated regularly to demonstrate progress and evolve to remain current, reflecting the changing regulatory, commercial and technological landscape.

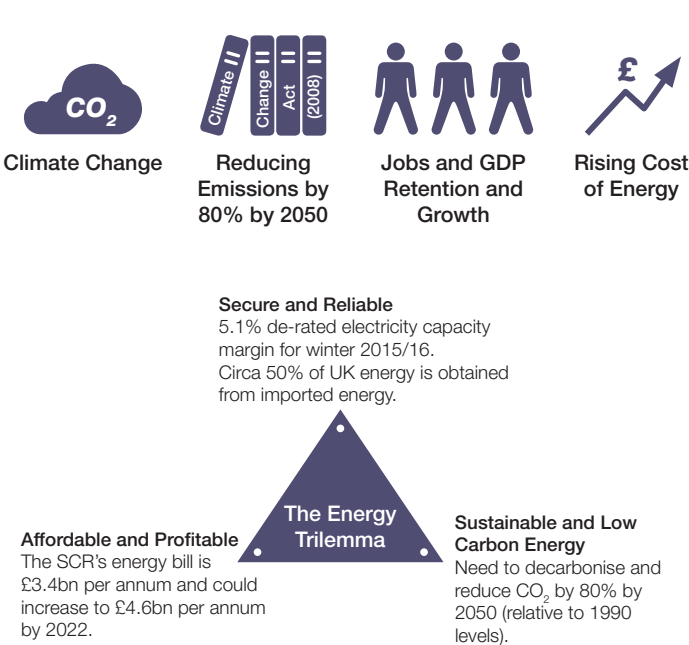
Energy

CURRENT SCR ENERGY USE

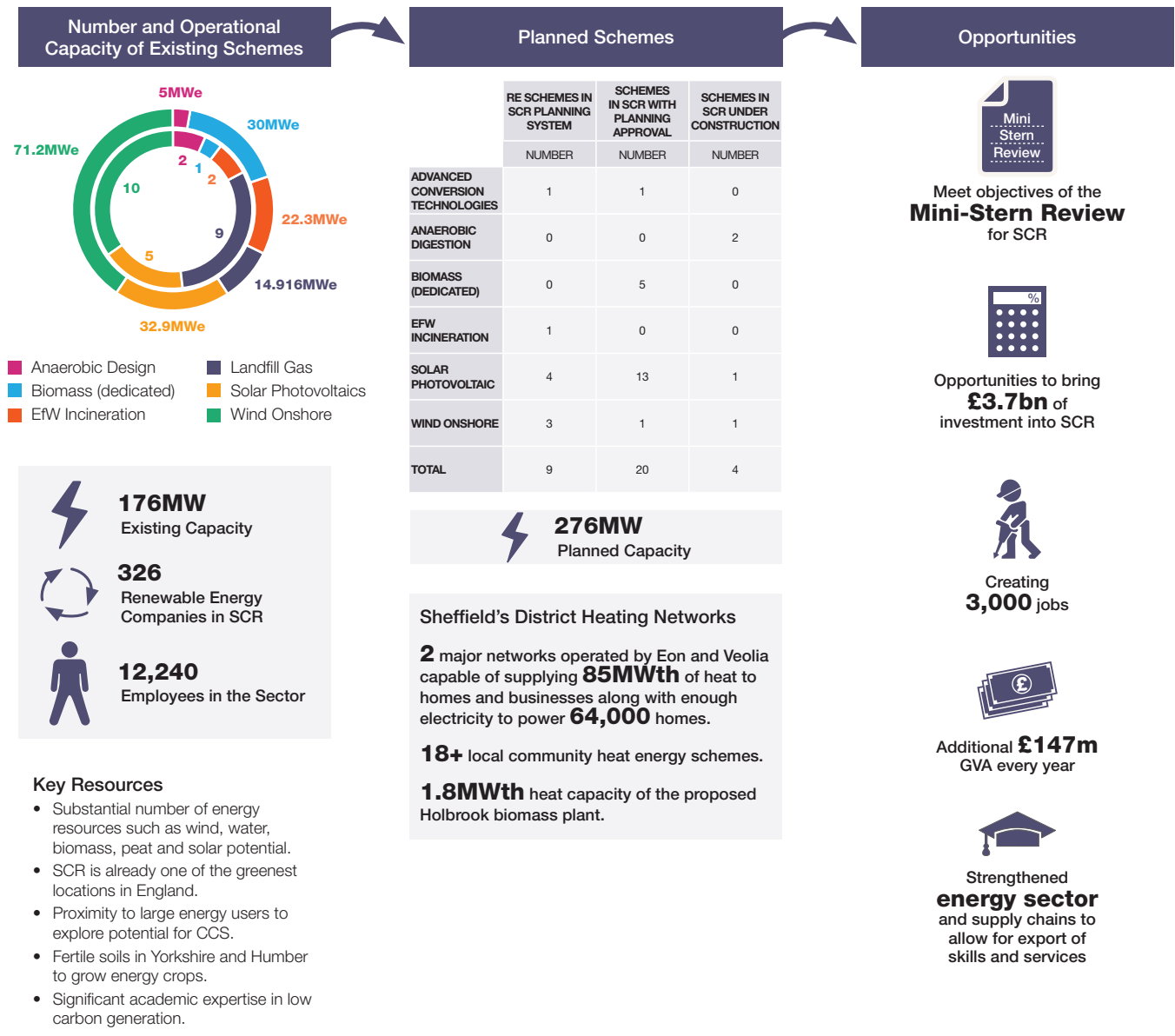


Consumption

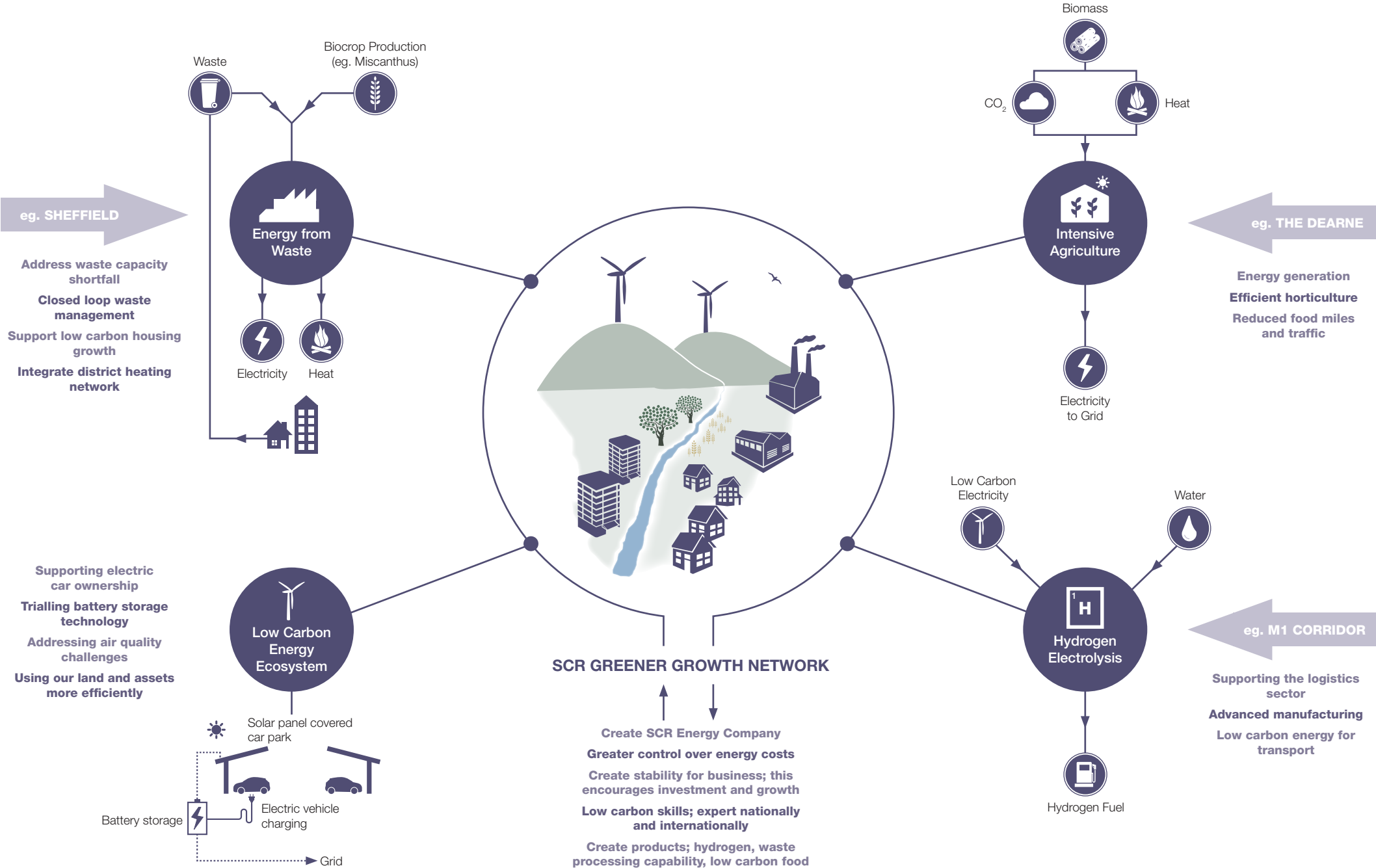
KEY DRIVERS FOR DECARBONISATION



RENEWABLE ENERGY CAPACITY



Low Carbon Energy Ecosystem



2.4 Spatial Packages & Highway Network Interventions

Packages of infrastructure interventions have been identified, based on the network analysis summarised in the previous sections, and these are shown by the mapping on the following pages.

There are seven identified Growth Areas across the City Region, each of which have a number of different infrastructure challenges and opportunities to be realised as indicated in Annex C Analysis of Challenges & Opportunities for Growth.

To maximise efficiencies and increase the value of infrastructure investment made in the Growth Areas, holistic, integrated packages of interventions are proposed. The rationale behind this is to ensure that all solutions (especially those which require multi-sector / agency intervention) are resilient, complementary and opportunities for linked and enhanced investment are explored.

It is proposed that infrastructure interventions within Growth Areas are integrated within a wider framework which articulates the approach to development and growth within these areas, at both a strategic and more localised level. This will:

- Provide a further level of detail that the development market and investors will need in order to understand the proposition, identify

opportunities and gain the confidence to invest.

- Provide the basis for investment in strategic infrastructure, by demonstrating the nature of the growth that it will support.

Given the already developed nature of Urban Centres, infrastructure interventions for these areas tend to be more discrete in nature and aimed at tackling a specific challenge, or unlocking a particular opportunity. Where relevant, strategic interventions are identified within these areas.

Summary of Key Spatial Recommendations by SEP Growth Area

A61 Corridor & Chesterfield: Address transport capacity issues on the A61, A619 and A617. Provide infrastructure to support 'The Avenue' and 'Staveley Works' developments. Tackle flood risk that affects the railway station and 1,000 – 2,000 properties in the Chesterfield area.

Dearne Valley – Junction 36: Capitalise on low carbon opportunities in the Dearne Valley. Enhance the freight role of the Dearne Valley. Need to better connect through the Dearne Valley into the TransPennine portal. Fluvial flooding affects strategic access to the M1.

DN7: Significant opportunity for growth in the low carbon sector through infrastructure provision (Carbon Capture). Flood defences required and transport connectivity enhancements (including rail station improvements and a link road) to support the major 'Unity' development.

Advanced Manufacturing Innovation District: Provide high quality connections to address accessibility challenges in the area. Tackle delay on A630, A633, A57 and A6178. Bring forward opportunities for energy generation and tackle flood risk along the Don Valley corridor. Connections into this area are an essential component of the HS2 connectivity package.

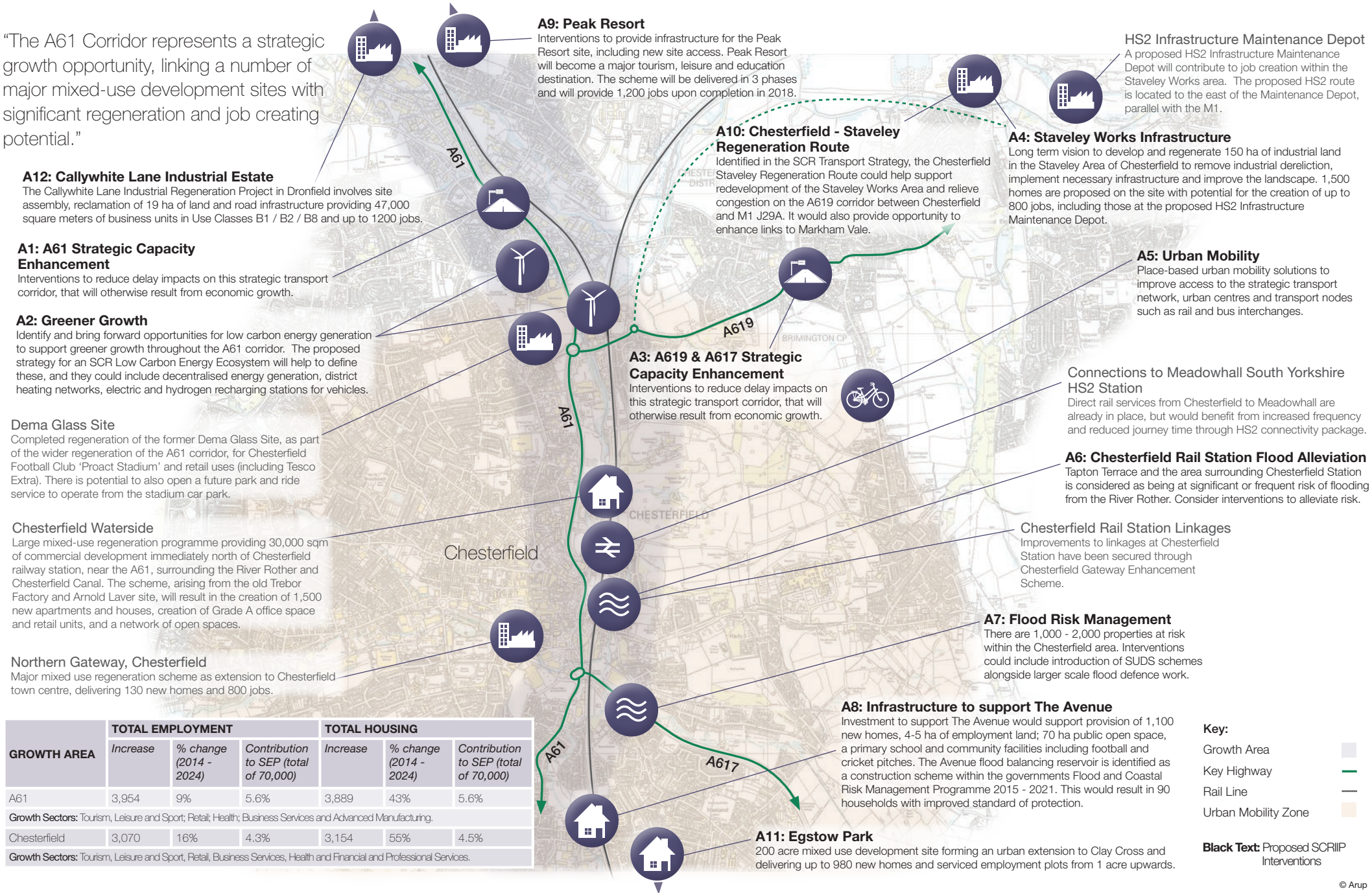
Markham Vale: Building on the SCRIF investment in enabling infrastructure, the Markham Vale site requires further investment to support viability of the former Coalite site.

Airport Corridor: Capitalise on the opportunity presented by the airport by providing rail connectivity. Overcome a number of transport capacity constraints including Doncaster rail station. Promote greener growth and low carbon development.

Sheffield City Centre: Key challenges of congestion on arterial routes. Need to plug broadband gaps and tackle fluvial flooding risk. Infrastructure required to support Sheffield Retail Quarter. A waste capacity shortfall has also been identified in the City Centre. It is essential that the HS2 station is connected to the wider city region.

A61 Corridor & Chesterfield

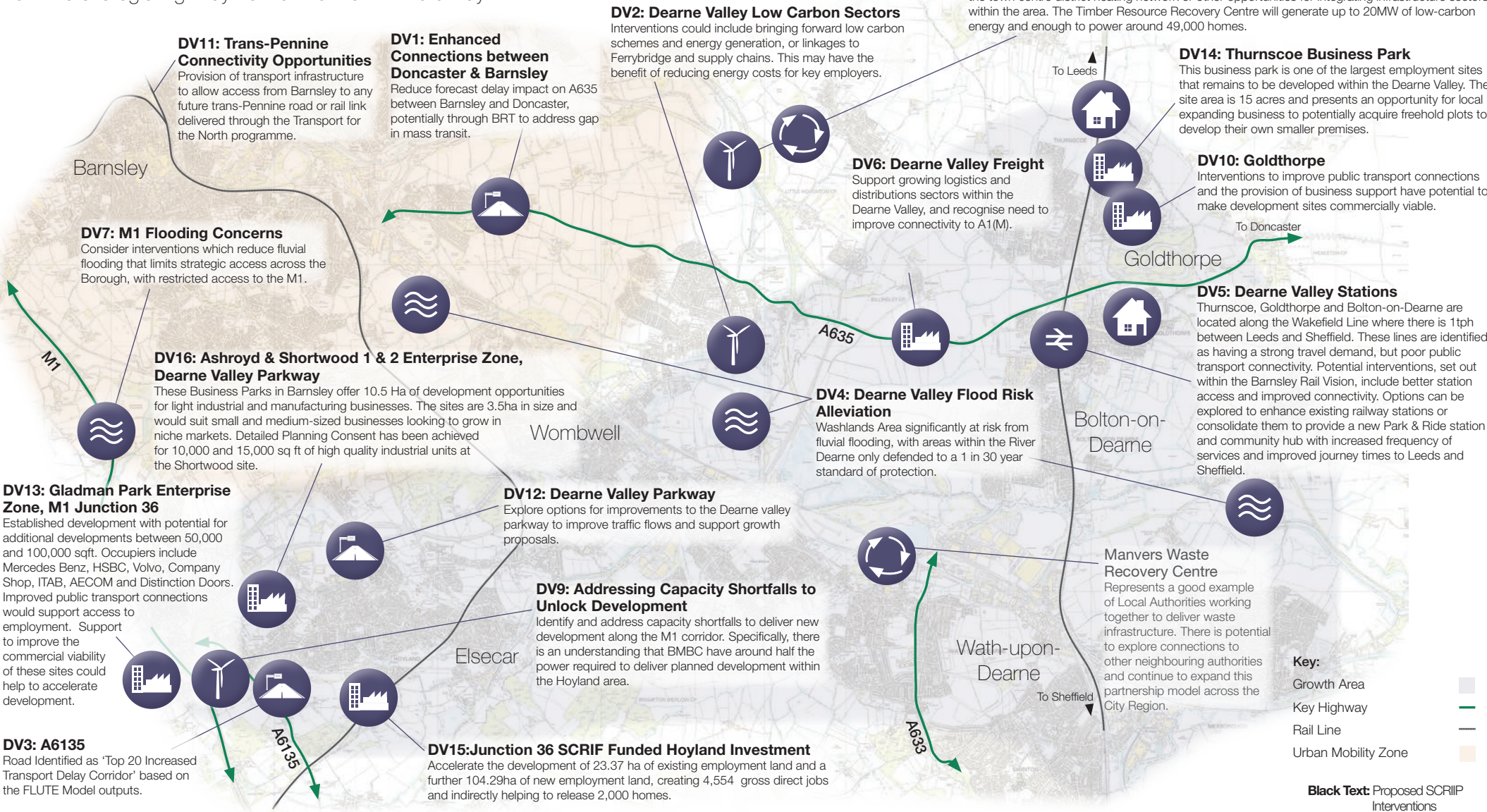
“The A61 Corridor represents a strategic growth opportunity, linking a number of major mixed-use development sites with significant regeneration and job creating potential.”



Dearne Valley, M1& Junction 36

“Capitalise on access to the motorway network to unlock employment land and enhance the freight role of the Dearne Valley. Improve connections between the A1 and M1 through the Dearne Valley and further west via the TransPennine portal. Address fluvial flood risk to ensure resilient access from the strategic highway network to the M1 motorway.”

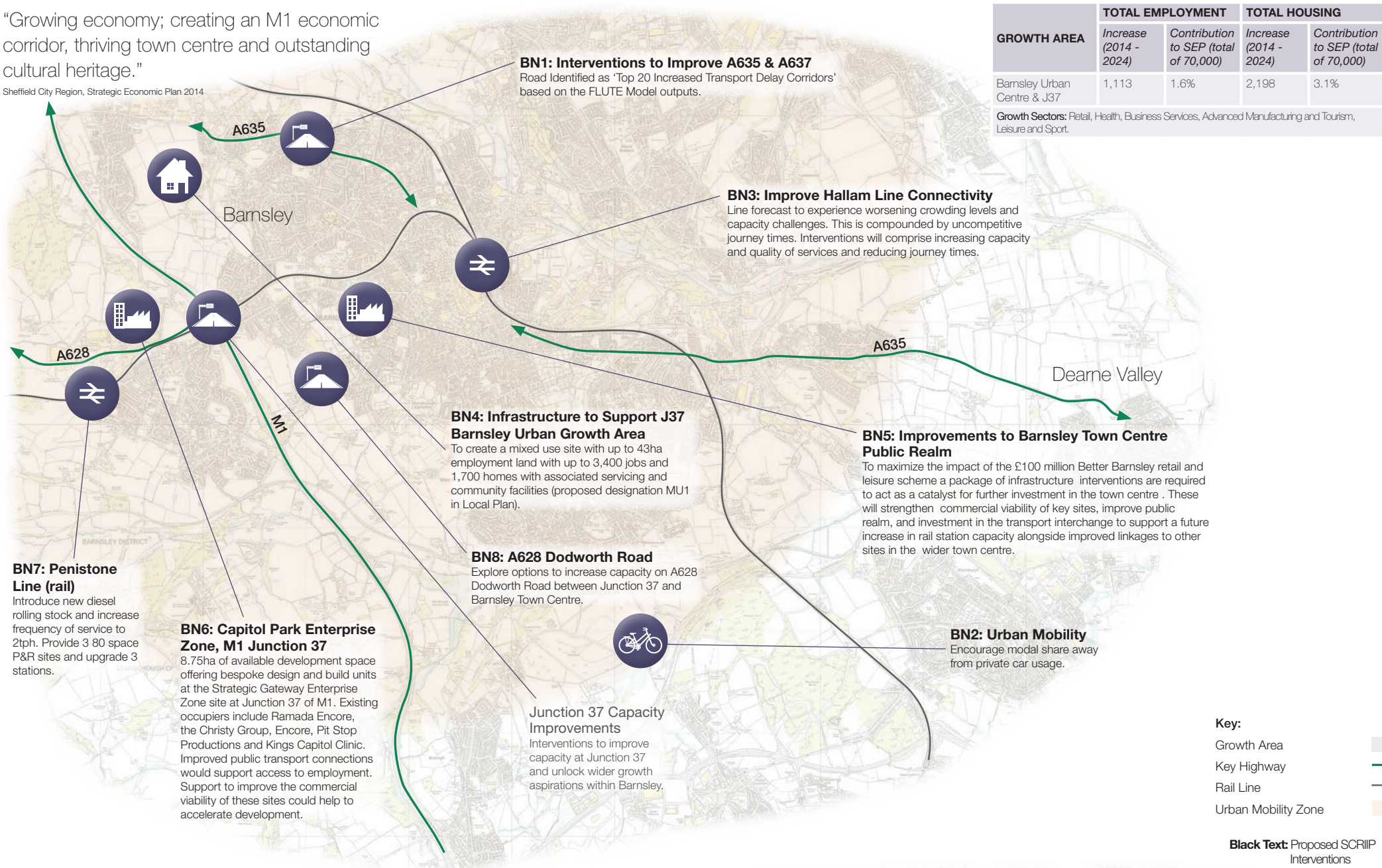
GROWTH AREA	TOTAL EMPLOYMENT		TOTAL HOUSING	
	Increase	Contribution to SEP (total of 70,000)	Increase	Contribution to SEP (total of 70,000)
Dearne Valley & J37	5,449	7.78%	3,305	4.72%
Growth Sectors: Logistics and Transport, Business Services, Advanced Manufacturing, Construction and Health.				



Barnsley Urban Centre & M1 Junction 37

“Growing economy; creating an M1 economic corridor, thriving town centre and outstanding cultural heritage.”

Sheffield City Region, Strategic Economic Plan 2014



DN7

“This mixed-use growth corridor will include a cluster of green businesses (including research and development opportunities) and hi-tech companies with new direct access to ports and the motorway network using low carbon technologies which will contribute to UK power needs and become one of the most advanced energy parks in the SCR, with its impact felt across the wider northern economy.”

DN1: Focus on Low Carbon Industry
DN7 is identified as becoming a centre for mixed use growth in low carbon and ‘green’ industry. Identify key synergies and opportunities between low carbon sectors in DN7 and increasing energy resilience across SCR.

Employment & Commercial Property Growth
DN7 will result in the unlocking of 300,600sqm B1 office, 140,800sqm of B2 light industrial and 670,000sqm B8 warehousing.

DN5: Connections to Low Carbon Sector
Explore connections to Ferrybridge and Drax multi-fuel storage and Humber renewable fuels terminal. Interventions could include improving the rail gauge clearance for biomass transferral, or identifying connections for a wider carbon capture network.

DN2: DN7 Flood Risk
Portions of DN7 are located on Doncaster Floodplains, which are affected by coastal and fluvial flooding. Identify methods of site-based alleviation and directing development out of areas of flood risk.

DN3: Infrastructure to Support Unity Masterplan
The Junction 5/ M18 Growth area, or DN7, is the focus for the ‘Unity Masterplan’. Based on a complex range of constraints and opportunities, the area would seek to deliver 1,200 homes by 2028 and an employment area. Interventions will include infrastructure to support the masterplan for the site, which comprises:

- Unity Life: A predominately rural development, with consent for a 500 berth marina and plans to accommodate up to 1,440 new homes by 2028. The first plan period will also result in the delivery of 400 homes in Stainforth.
- Unity Living: This sub-area will accommodate up to 1,105 new homes and greater connectivity to Bootham Lane.
- Unity Connect: Deliver approximately 50 hectares for manufacturing and logistics business.
- Unity Link: Gateway to development at Junction 5 of the M18, which will comprise approximately 86,400m² for commercial occupation, a new Moto motorway service area and a new 120 bed hotel.
- Unity Energy: Area which has permission for a 900MW carbon capture power station, materials recycling facility and opportunity for a rail freight handling capability.
- Unity Town: This will provide up to 555 new homes in the long-term (post-2028) and will include a mix of homes and district retail facilities.

DN4: Utility Infrastructure
Ensure utility network is in place to support ‘Power Park’.

M18 Congestion
M18 is considered to be a key area of congestion, particularly where it joins the A1(M). Improvements have been undertaken to Junction 2 and 3 through the national Pinch Point Programme.

DN6: Transport Hub & Opportunities for Rail Links
Infrastructure interventions to support overall growth of DN7 could comprise construction of a rail station or bus interchange.

Creation of a Link Road
Creation of a new link road from Junction 5 of the M18 to Hatfield improving access to the Don Valley Power Park. This scheme is identified in SCRIF.

Key:

Growth Area

Key Highway

Rail Line

Black Text: Proposed SCRIF Interventions

GROWTH AREA	TOTAL EMPLOYMENT			TOTAL HOUSING		
	Increase	% change (2014 - 2024)	Contribution to SEP (total of 70,000)	Increase	% change (2014 - 2024)	Contribution to SEP (total of 70,000)
DN7	243	3%	0.3%	4,561	48%	6.5%

Key Growth Sectors: Tourism, Leisure and Sport; Retail; Health; Business Services and Advanced Manufacturing.

Advanced Manufacturing Innovation District

“The Advanced Manufacturing Innovation District represents the largest cluster of modern manufacturing in the SCR and also includes a major retail centre, first class sporting facilities and popular cultural attractions.”

M1 Junctions 32-35a Smart Motorways
Implementation of a smart motorway network to relieve congestion by using technology to vary speed limits. The scheme commenced in winter 2014 / 2015 and is expected to be complete by winter 2016 / 2017.

SR7: Waste Management
As a capacity gap exists encourage further changes in waste behaviours to minimise growth in waste levels and further consider where a 'closed loop economy' could be achieved, e.g. through further expansion of energy generation from waste.

SR11: Cycle Superhighway
Proposed Rotherham-Sheffield Cycle Superhighway providing connectivity between the two urban centres and improved access to AMID.

Key:

- Key Highway
- Cycle Superhighway
- Rail Line
- Urban Mobility Zone
- Sub-areas of AMID:**
- Foundation Anchors
- Manufacturing and Technology Cluster
- Foundation Industries
- Sport, Leisure and Retail Corridor
- New Neighbourhoods

Black Text: Proposed SCRIP Interventions

Advanced Manufacturing Park
Provides high quality infrastructure including integrated transport, social spaces, incubation/start-up/accelerator facilities and high-quality education, research and development. Includes Hydrogen refuelling station which is completely self-sufficient and uses wind power combined with water to produce hydrogen.

SR9: Olympic Legacy Park
Infrastructure to support the success of the Olympic Legacy Park. This will deliver an Advanced Wellbeing Research Centre, UTC 3 Sheffield for Human Sciences and Computing, a 1,200 place academy, the English Institute of Sport, Ice Sheffield, Altitude, a community area, rugby pitch and green space.

SR6: Greener & Low Carbon Growth
Identify and bring forward opportunities for energy generation to support greener growth of the Sheffield-Rotherham corridor. Synergies between the AMP and low carbon growth should be explored further.

SR8: Templeborough
Provision of a package of financial, planning and support incentives to encourage investment in Templeborough. The area represents a number of commercial development sites located in close proximity to Junction 33 and 34 of the M1. These sites are located in the SCR Enterprise Zone and benefit from Business Rate Relief and Enhanced Capital Allowance.

GROWTH AREA	TOTAL EMPLOYMENT			TOTAL HOUSING		
	Increase	% change (2014 - 2024)	Contribution to SEP (total of 70,000)	Increase	% change (2014 - 2024)	Contribution to SEP (total of 70,000)
Don Valley Corridor	9,273	23%	13.2%	5,712	121%	8.2%
Growth Sectors: Retail, Advanced Manufacturing, Creative and Digital Industries, Business Services and Financial and Professional Services.						

SR4: Flood Risk
Areas of Sheffield-Rotherham Don Valley Corridor are at risk from fluvial flood risk. Investment in flood risk reduction through the Rotherham and Lower Don Valley Flood Alleviation scheme is already enabling investment in these areas and providing a model for partnership funding. Continued integration of flood alleviation schemes, SUDs and water management schemes within Local Centres could present opportunities to realise the regeneration benefits of blue and green infrastructure.

SR10: M1 Junction 34
Alleviate capacity constraints at this junction.

SR3: A630 & A6178 Increased Transport Delay Corridors
These roads were identified as increased transport delay corridors within the FLUTE model.

SR5: High Quality Multi-Modal Access to the nucleus of the Advanced Manufacturing Innovation District (AMID)
Intervention including new mass transit links improving access to the nucleus which encompasses AMP1 and Waverley combined with AMP2 and the Sheffield Business Park.

SR1: Expansion of the AMID nucleus (AMP and SBP)
Infrastructure to support expansion at the nucleus of the Advanced Manufacturing Innovation District. Plans to provide a high quality local centre with good quality public realm in the central area between the AMP1 and Waverley housing development which will form a key part of the nucleus for the wider AMID area. Interventions to provide connectivity within the nucleus including public transport, cycling and walking. A high quality development of retail, restaurants, coffee shops, health centre, hotel and conferencing facilities to serve the needs of the AMID will be encouraged to act as a draw across the wider area and provide the much needed facilities to ensure the area works as a viable, vibrant and dynamic housing / employment community.

SR2: Waverley Mixed-Use Development
The 740 acre development, led by Harworth Estates, will result in the delivery of 4,000 homes, educational and health facilities, open space and new access.

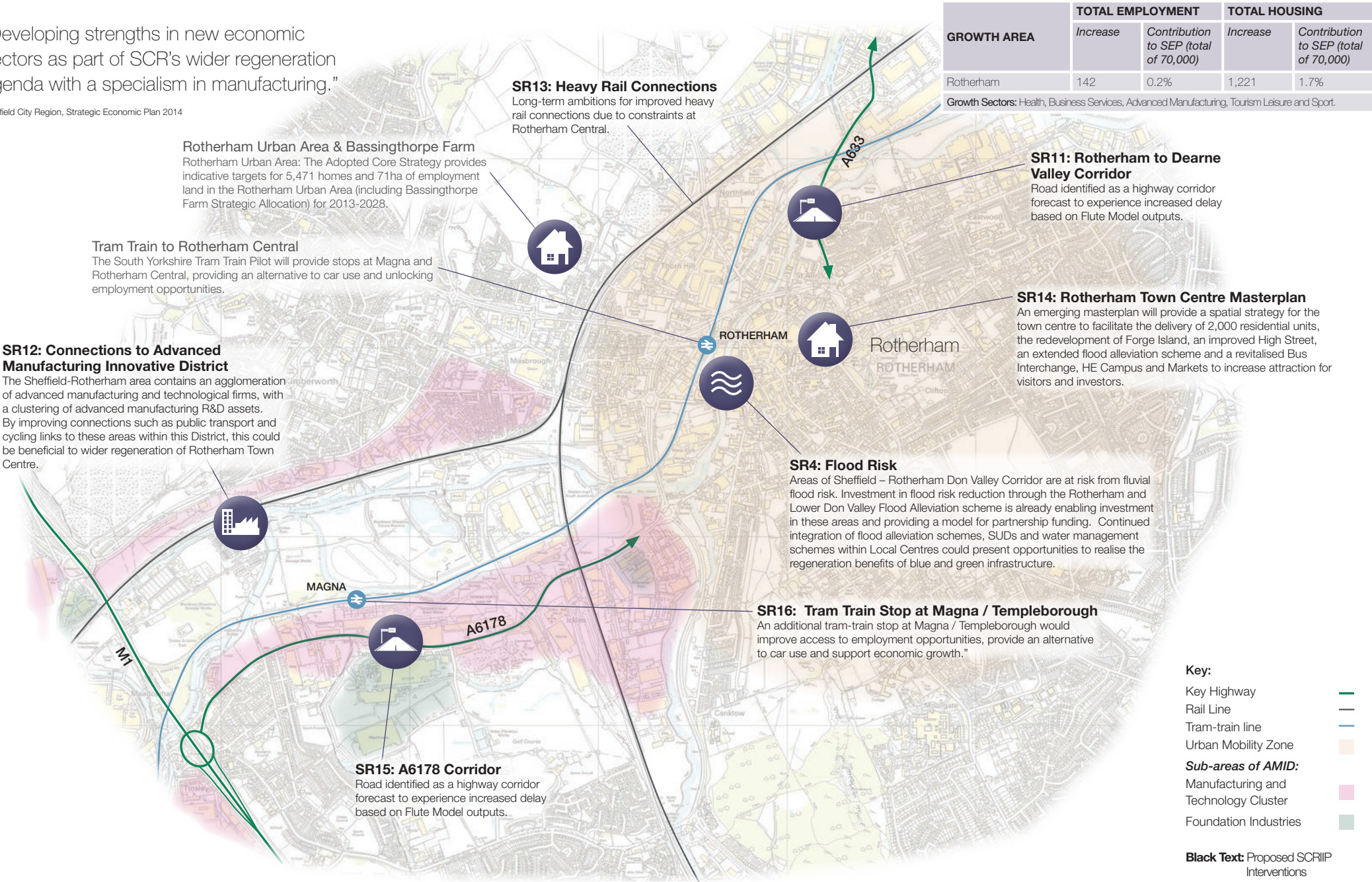
Waverley Link Road
Provide new access to developments within the AMP / Waverley site.

Widening of Sheffield Parkway
Widening of the A630 to a dual 3-lane road between the M1 Junction 33 and Catcliffe Interchange.

Rotherham Town Centre

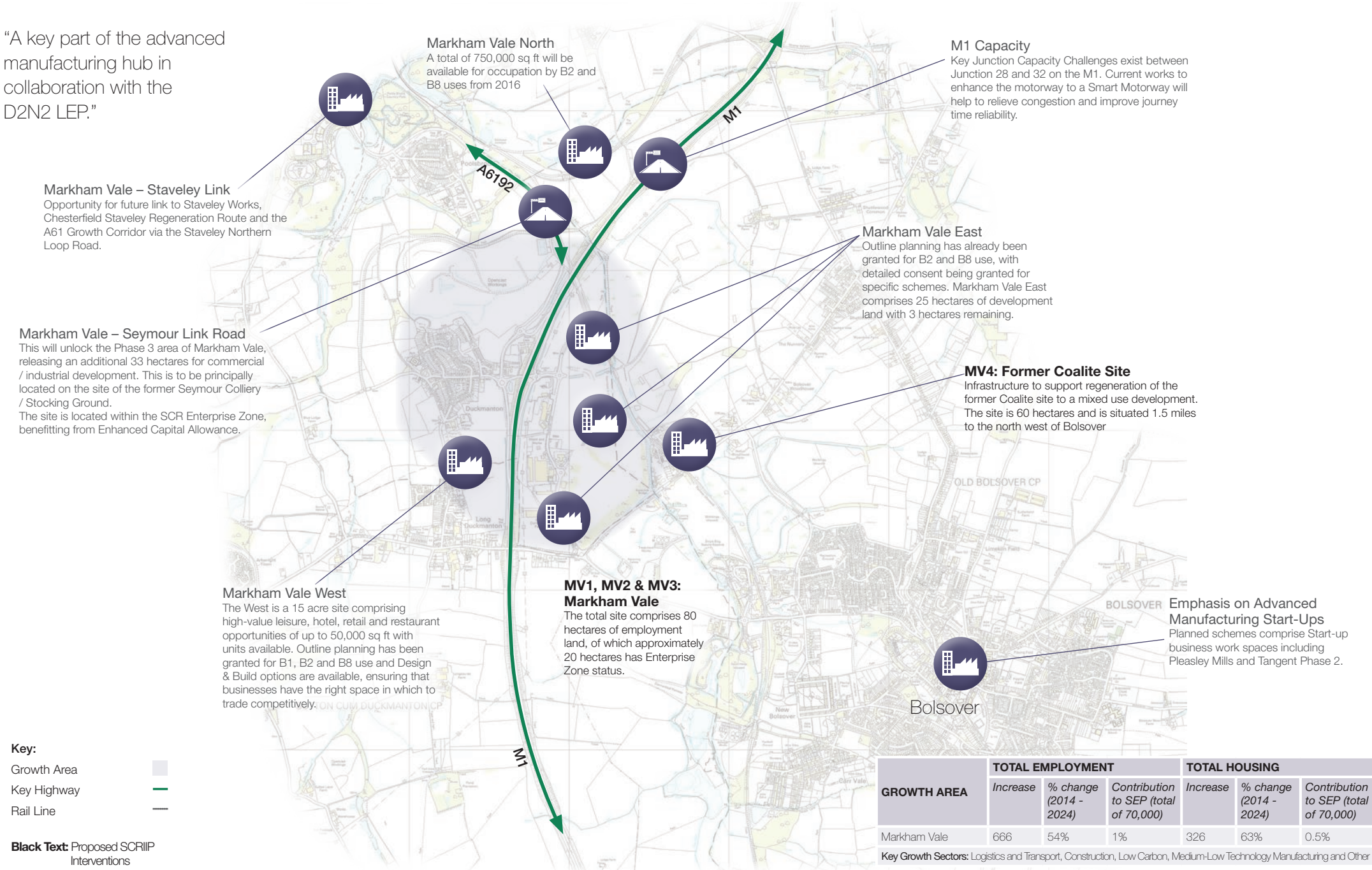
“Developing strengths in new economic sectors as part of SCR’s wider regeneration agenda with a specialism in manufacturing.”

Sheffield City Region, Strategic Economic Plan 2014



Markham Vale & Bolsover

“A key part of the advanced manufacturing hub in collaboration with the D2N2 LEP.”



DSA Corridor & Doncaster

“This and surrounding areas to be recognised as a catalyst for business development, inward investment and job creation with regard to logistics, engineering and associated aviation activities.”

Urban Sites within Doncaster
Large areas within Doncaster promoted for housing developments, including 1,600 homes planned within Balby.

Lakeside Infrastructure Institutions
Application submitted for the National College for High Speed Rail at Doncaster Lakeside. This will capitalise on locational advantages from being in close proximity to DB Schenker, Volker Rail and Hitachi. Doncaster is also set to become the base for The National Institute for Infrastructure.

DSA8: Doncaster Flood Risk
Large areas of Doncaster are at risk from flooding. Opportunities to integrate flood risk mitigation with green and blue infrastructure should be explored, with an objective of enhancing place-making.

DSA4: A630 & A6182
The A630 Rotherham to Doncaster corridor is identified as a corridor where bus journey times are worsening. Along with the A6182 corridor, it is forecast to experience increased travel time delay if mitigation measures are not implemented.

DSA2: A1/M18 Junction
The A1(M) from M18 Doncaster to Darrington in Wakefield is considered to be a significant area of constraint, with extensive congestion and safety concerns. Implementation of strategic interventions on this route could increase productivity and the vitality of local centres.

DSA6: Urban Mobility
Interventions could include place-based urban mobility solutions to improve local access, urban centres and transport nodes such as rail and bus interchanges.

iPort Rail Freight Intermodal Terminal
Strategic rail freight terminal with direct access to national motorway system and will connect to existing rail network via South Yorkshire Joint Line.

DSA5: Alleviate Capacity Constraints at Doncaster Rail Station
The East Coast Mainline connects Doncaster to London and the north. However there are capacity constraints at Doncaster where services from Humberside are required to cross the ECML, which does limit the capacity of the ECML. In addition, the ECML displays high levels of passenger overcrowding, which is likely to increase. Planned improvements will contribute to unlocking greater access to labour markets.

DSA7: Greener Growth & Low Carbon Development
Identify and bring forward opportunities for energy generation to support greener growth throughout DSA Corridor and Doncaster.

M18
M18 is considered to be a key area of congestion, particularly where it joins the A1 (M). Improvements have been undertaken to Junction 2 and 3 through the National Pinch Point Programme.

Finningley & Rossington Regeneration Route Scheme
Completed in early 2016, the FARRRS provides:
• 4km of new road from junction 3 of the M18 to the A638 at Parrots Corner.
• A new link to Rossington, the iPort and Doncaster Sheffield Airport.

DSA1: Doncaster Sheffield Airport Surface Access & Onsite Airside Infrastructure
DSA is identified as a growth area which is currently being developed as an engineering and aero-industry centre, alongside and including housing growth. DSA can benefit from further improvements to surface access, in the form of:
• Improved bus services including express services to Sheffield and Doncaster centres.
• Better rail connectivity through a future community rail station at Hayfield Lane and connectivity to ECML and HS2. This would permit greater access to DSA via the Doncaster - Lincoln Line or East Coast Mainline and would help unlock European labour markets.
DSA suffers from acute cargo capacity constraints and urgently needs new transit shed facilities with associated taxi-ways and aprons. Similarly, dedicated vehicular access from the south off the A638 is needed to provide access to planned transit sheds and landside logistics.

Broadband Connectivity
Some areas of South Yorkshire have the lowest levels of coverage for superfast broadband in the UK. Superfast Broadband South Yorkshire will seek to increase coverage to 98%.

DSA3: iPort Rossington Rail Freight Growth
iPort, or Doncaster Inland Port, is a development which will incorporate a logistics centre and a 35 acre dedicated strategic rail freight terminal. It is symbolic of the importance of logistics as a key sector in Sheffield City Region. Opportunities exist to create synergies with the logistics sector within this growth area.

- Key:**
- Growth Area
 - Key Highway
 - Rail Line
 - Potential Future Rail Station
 - Urban Mobility Zone

Black Text: Proposed SCRiIP Interventions

GROWTH AREA	TOTAL EMPLOYMENT			TOTAL HOUSING		
	Increase	% change (2014 - 2024)	Contribution to SEP (total of 70,000)	Increase	% change (2014 - 2024)	Contribution to SEP (total of 70,000)
Doncaster	11,906	38%	17%	2,594	24%	3.7%
Growth Sectors: Retail, Business Services, Financial and Professional Services, Health and Tourism, Leisure and Sport						
DSA	8,528	88%	12%	6,155	51%	8.8%
Growth Sectors: Construction, Other, Tourism Leisure and Sport, Medium-Low Technology Manufacturing						

Sheffield City Centre

“As the City Region’s hub for Knowledge, Creative and Digital Industries, Leisure, Higher Education, Culture and Financial and Professional Services Sectors, Sheffield City Centre is a key engine for growth.”

Implementation of Sheffield Lower Don Valley Flood Alleviation Scheme
1,200 homes and 1,000 businesses were flooded in 2007 alone. Early work has begun to progress on the Sheffield Lower Don Valley Flood Protection Scheme. This will result in alleviated standard of protection to 570 homes, strategic infrastructure and utilities and commercial properties.

S9: West End Transport Masterplan
Sheffield City Council proposal to introduce a new westbound tram route to alleviate congestion and increase capacity, reducing pollution and limiting conflicts on the Inner Ring Road.

S1: Broadband Coverage
Sheffield City Centre suffers from poor superfast broadband coverage. There is scope to encourage investment through demand stimulation, along with attracting investment to provide a city centre wide ultrafast broadband network.

S7: Infrastructure to Support Sheffield Retail Quarter
Proposals are focused on Barkers Pool, Pinstone Street and Moorhead and will result in the delivery of:

- Extended shopping area;
- New office and public spaces;
- New restaurants and cafes.

S8: Electricity Capacity Shortfalls at 11kv Level
There are a number of shortfalls at the 11kv network level. There may be some investment needed in the electricity distribution network to deliver the City Centre Masterplan.

S4: Alleviating Strategic Flood Risk & Strategic Infrastructure
Large areas of Sheffield City Centre are at risk from fluvial flood risk and many city centre watercourses have been historically culverted and removed from the landscape. Opening up and re-naturalising these watercourses, as has already been successfully delivered at Matilda Street, alongside integration of flood alleviation schemes, SUDs and water management schemes within Local Centres could present opportunities to realise the regeneration benefits of blue and green infrastructure.

S3: City centre transport capacity & radial delay corridors
One third of the city region’s increased transport delay corridors converge on Sheffield City Centre, which is to provide one half of the City Region’s jobs growth. To provide for this growth, an integrated package of highway improvements, tram extensions, and world-class pedestrian and cycling infrastructure will be required in and around the city centre and its radials, to provide transport capacity to connect the City Region to its single largest jobs growth area.

S12: Inner Ring Road
The ability of the Inner Ring Road to receive traffic from radial routes is a fundamental capacity constraint in respect of the radial delay corridors.

GROWTH AREA	TOTAL EMPLOYMENT			TOTAL HOUSING		
	Increase	% change (2014 - 2024)	Contribution to SEP (total of 70,000)	Increase	% change (2014 - 2024)	Contribution to SEP (total of 70,000)
Sheffield City Centre	20,503	42%	29.3%	12,469	167%	17.8%
Growth Area: Retail, Financial and Professional Services, Creative and Digital Industries, Tourism, Leisure and Sport.						

S5: Greener & Low Carbon Growth
Identify and bring forward opportunities for energy generation to support greener growth within Sheffield City Centre.

S6: Waste Management
As a capacity gap has been identified encourage further changes in waste behaviours to minimise growth in waste levels and further consider where a ‘closed loop economy’ could be achieved, for example, through expansion of energy generation from waste.

Sheffield Rotherham Tram Train Pilot
New Supertram connectivity between Rotherham and Sheffield via The Lower Don Valley.

S2: Rail Connectivity & Benefits of HS2
Provide a package of transport connectivity improvements to connect Central Business District to the future HS2 station and improve connectivity between the HS2 station and the wider Sheffield City Region.

S11: Remodelling of Sheffield Station
This is necessary to provide greater capacity and frequency of services at Sheffield Station.

S10: Upper Don FAS
The Upper Don Flood Alleviation Scheme presents a key opportunity upstream of the centre to improve the flood resilience of Sheffield City Centre by mitigating flood risk.

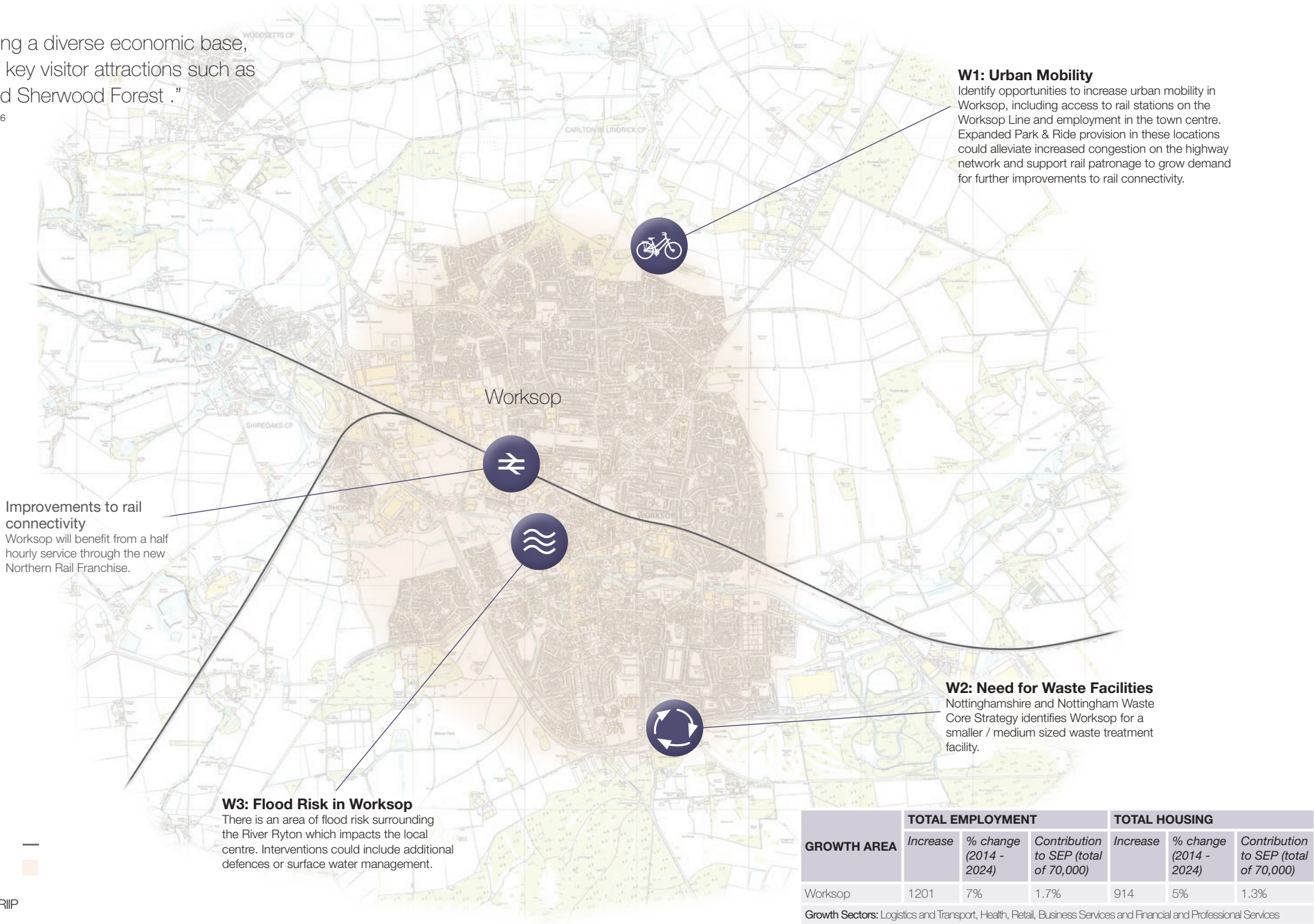
- Key:**
- Key Highway
 - Rail Line
 - Urban Mobility Zone

Black Text: Proposed SCRIP Interventions

Workshop

“A town developing a diverse economic base, with a number of key visitor attractions such as Clumber Park and Sherwood Forest .”

SCR Transport Strategy 2011 - 2026



Retford

“A town benefitting from a strategic location on the national railway network and strong economic links to Nottingham, Newark and Lincoln.”

SCR Transport Strategy 2011 - 2026

ECML Capacity

New Intercity Express rolling stock, which will be introduced in 2018, should reduce overcrowding on ECML.

RE4: Urban Mobility

Place-based urban mobility solutions to improve access to the strategic transport network, urban centres and transport nodes such as rail and bus interchanges.

RE3: Need for Waste Facilities

Nottinghamshire and Nottingham Waste Core Strategy identifies Retford for a small / medium sized waste treatment facility.

New Northern Rail Franchise

- Planned improvements will result in (as a minimum):
- Two trains per hour (Monday - Saturday) between Sheffield, Worksop and Retford by 2017.
 - Replacement of Pacer trains by 2020.

RE1: Flood and Coastal Erosion Risk Management

Flood and Coastal Risk Management Programme identified development project, which could raise the standard of protection to 110 households.

RE2: Chancery Lane Area

Chancery Lane area and Retford Station (Sheffield - Lincoln line) particularly susceptible to flooding. Intervention could include defences or water management schemes.

Key:

Rail Line

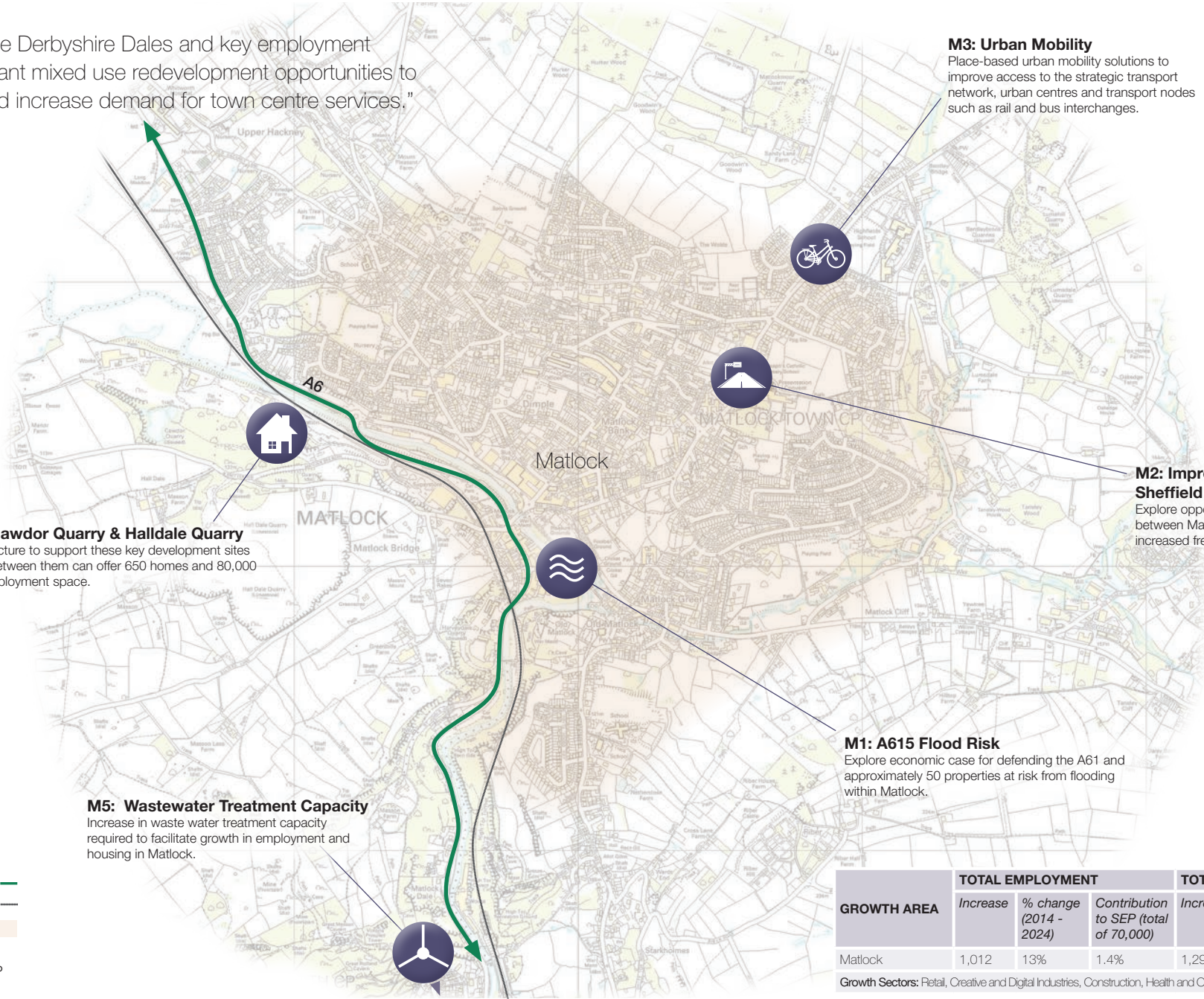
Urban Mobility Zone

Black Text: Proposed SCRIP Interventions

GROWTH AREA	TOTAL EMPLOYMENT			TOTAL HOUSING		
	Increase	% change (2014 - 2024)	Contribution to SEP (total of 70,000)	Increase	% change (2014 - 2024)	Contribution to SEP (total of 70,000)
Retford	524	6%	0.7%	1,537	15%	2.2%
Growth Sectors: Retail, Tourism Leisure and Sport, Health, Creative and Digital Industries and Financial and Professional Services.						

Matlock

“Largest town in the Derbyshire Dales and key employment centre with significant mixed use redevelopment opportunities to support growth and increase demand for town centre services.”

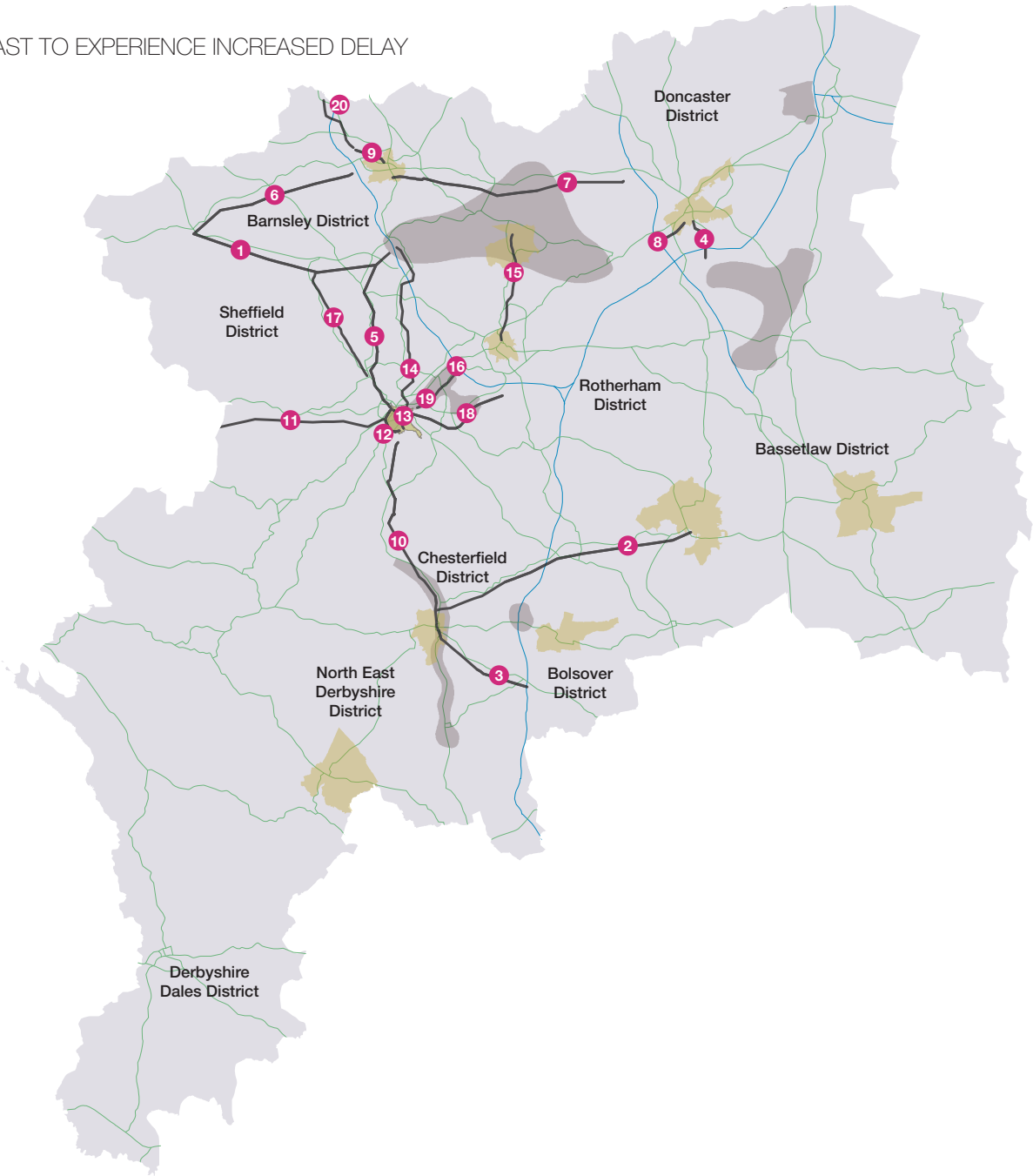


GROWTH AREA	TOTAL EMPLOYMENT			TOTAL HOUSING		
	Increase	% change (2014 - 2024)	Contribution to SEP (total of 70,000)	Increase	% change (2014 - 2024)	Contribution to SEP (total of 70,000)
Matlock	1,012	13%	1.4%	1,298	26%	1.9%
Growth Sectors: Retail, Creative and Digital Industries, Construction, Health and Other.						

Strategic Transport Network

TOP 20 HIGHWAY CORRIDORS FORECAST TO EXPERIENCE INCREASED DELAY

- 1. A616 Manchester / M1 / SCR Corridor
- 2. A619 Chesterfield / Worksop Corridor
- 3. A617 Chesterfield / Mansfield Corridor
- 4. A6182 Doncaster / M18 (Junction 3) Corridor
- 5. A61 Penistone / Sheffield Corridor
- 6. A628 Barnsley / Penistone Corridor
- 7. A635 Barnsley / Doncaster Corridor
- 8. A630 Doncaster / A1(M) (Junction 36) Corridor
- 9. A635 Barnsley / A637 / M1 (Junction 38) Corridor
- 10. A61 Chesterfield / Sheffield Corridor
- 11. A57 Peak District / Manchester / Sheffield Corridor
- 12. A61 Sheffield City Centre St Mary's Way to Penistone Road
- 13. A61 Sheffield City Centre Shalesmoor to Shoreham Street
- 14. A6135 Sheffield / M1 (Junction 36) Corridor
- 15. A633 Rotherham / Dearne Valley Corridor
- 16. M1 (Junction 34 - 34)
- 17. A6102 Sheffield / Stocksbridge Corridor
- 18. A57 & A630 Sheffield / Rotherham / M1 (Junction 33) Corridor
- 19. A6178 M1 (Junction 34) / Sheffield Corridor
- 20. A637 / M1 (Junction 38) / Barnsley Corridor



Key:
Highway corridor forecast to experience increased delay
Local Centres
Growth Areas

3 Delivering Key Infrastructure Priorities

3.1 Commissioning Approach

What is a Commissioning Approach?

The commissioning approach has been developed to create an up-front mechanism to ensure proposals are brought forward in a coordinated manner and consider integrating individual schemes as part of an overall investment. For the commissioning approach to be successful, it is essential that proposals are fairly and transparently evaluated to both ensure best value for money, but also to recognise and value the proposals which can make a demonstrable difference towards achieving the SEP objectives.

The emphasis of this Integrated Infrastructure Plan is on the agglomeration benefits that can be achieved by investing across the infrastructure spectrum in Growth Areas and investing in projects that will deliver demonstrable change and delivery of the SCR's economic objectives.

The Commissioning Approach will not be a mechanism for evaluating and funding individual schemes. Instead it will evaluate integrated packages of infrastructure interventions, defined through a framework approach. Through these frameworks infrastructure will be delivered which can create conditions for growth and support the Growth Areas, Urban Centres, the SCR's housing sites and strategic transport network. It is deliberately not prescriptive, allowing promoters the freedom to identify other opportunities in addition to those contained in this Plan that will support the SCR's economic growth.

In terms of evaluating interventions, whilst value for money is an important consideration, the approach to commissioning will also be capable of including other success measures.

SCR has adopted an evolving approach to evaluating schemes for investment through its pioneer SCRIF approach. A Single Assessment Framework (SAF) has been developed which evaluates proposals to determine the overall impact of investment. Impact is measured by contribution to the net GVA of SCR per £ spend from SCRIF, but secondary objectives to ensure that social and geographical priorities are achieved (with minimal impact on GVA) are now also considered.

3.2 Relating the Commissioning Approach to the Funding Approach

An overarching approach for the allocation of both grant-based capital funding and the revolving funds will ensure that all potentially available funds are used in a complementary way to support and grow the City Region economy and provide clarity to investors.

This approach is rooted in the concept of a 'fund of funds' and it will be the role of SCR to align funding to the most beneficial investments. This continues to develop the initial design of the fund of funds included in the City Deal. The premise is that scheme promoters respond to the commission with the package of investments that best meet the objective of economic growth and SCR finds the most appropriate way to fund the scheme using the range of funding instruments available.

To address both the short term blockages and medium to long term delivery two broad types of fund will be employed; a Capital Fund and a revolving Urban Development Fund. Applications for funding should be supported by private sector investment and it should be clear that there is no alternative (more appropriate) funding source to progress the intervention.

- The Capital Fund will comprise the Local Growth Funds, funding secured through Devolution Agreements and any other aligned capital funds including those that may be established using some of the mechanisms identified in Section 5 of this Plan.
- The Urban Development Fund will make use of the existing JESSICA structures and be a revolving fund underpinned by an agreed Investment Strategy (established using capital funding). This funding instrument is intended for unlocking stalled schemes, and is not intended to make unviable schemes viable. SCR will retain flexibility in the application of this type of fund to maximise economic benefit. It is expected that applications will be supported by private sector investment and be in-line with the SCR Urban Development Fund Investment Strategy.

3.3 Process for Commissioning Interventions

The SCR IIP sets out the high level principles of how we will commission the future infrastructure pipeline. The detail of prioritisation will subsequently be developed with partners. Developing an investment pipeline is a complex process and the SCR IIP will set the strategic context upon which to develop the pipeline.

Applications for funding would be invited,

through multiple calls, and should be coordinated and led by a Lead Promoter, supported by key stakeholders working together collaboratively to bring forward integrated packages of infrastructure interventions. This is to ensure that all potential interventions are captured and all partners coordinated. Calls will be open to promoters from the private and public sector, however, initially SCR will be seeking to invest in schemes that have a Local Authority partner.

The process builds on the existing SCR Assurance and Accountability Framework,

with the commissioning stage providing the entry point to the programme. The purpose of this approach is to provide a framework from which an increasingly integrated approach can be taken. The first stage of this approach is to develop a package of schemes which together can overcome identified challenges and maximise benefits. The system remains flexible to deal with individual schemes, but the selection criteria will favour more integrated packages of investment.

The key stages of the commissioning approach will be as follows:

Stage	Promoter Action
i) Expression of Interest (EOI)	Complete EOI Template
ii) Initial Sifting	Present package to Board
iii) Prioritisation & Programme Entry (Testing Tool)	Complete Project Mandate Testing Tool data input template
iv) Business Case Development	
a. Outline Business Case	Complete OBC Template (Quarterly Returns)
b. Full Business Case	Complete FBC Template (Quarterly Returns)
c. Funding Agreement	Complete Funding Agreement (Quarterly Returns)
v) Delivery	Complete Claim Returns (Quarterly Returns)
vi) Outcomes Evaluation & Monitoring	Undertake Evaluation

Table 2: Commissioning Approach Stages

3.4 Criteria for Evaluating Interventions

Building on the pioneering work of SCRIF and the Single Assessment Framework, the commissioning approach for this Plan will consider value for money and additional social and environmental benefits. The evaluation criteria will remain flexible to the needs of the Combined Authority but will have a number of constant themes running for all commission rounds.

1. Prioritisation and evaluation will be based on the Green Book five cases approach and will therefore consider:

- a. Strategic Case: the problem the project will solve and its fit to local and national objectives.
- a. Economic Case: the value of benefits the project will deliver with particular emphasis on delivering the outcomes required to deliver the SCR SEP objectives.
- a. Commercial Case: the demand justification and evidence that once completed the project will achieve the outcomes identified.

- a. Financial Case: the overall financial position including the certainty of scheme costs and other sources of funding sought and secured.
 - a. Management Case/ Delivery Case: the overall deliverability of the project and outcomes including governance structure, programmes, statutory processes and the approach to state aid.
2. Within these cases, SCR will be looking for: Value for Money and Economic Impact.
 3. Delivery of interventions in the Growth Areas, Urban Centres and on the strategic transport network. Though other areas will be considered where strong benefits can be demonstrated.
 4. Ability to leverage private sector investment and / or assets.
 5. For applications to the capital fund - the ability for interventions to have started and be making a contribution towards SEP objectives within 5 years (e.g. construction jobs, use of local supply chains).
 6. For recyclable funds - the ability of funds to be recovered within an appropriate timescale.
 7. Clear demonstration of additionality.

The Infrastructure Executive Board (IEB) will retain flexibility to focus any individual commission on specific needs as they arise. For example, if in the view of the IEB investment in commercial property was highlighted as an urgent priority, then the Board could include further evaluation criteria that would bias investment that includes this type of intervention.

3.5 Commissioning Stage

This page sets out the stages of the commissioning approach, with the following pages describing this process in detail. This section should be used by the potential package leads and scheme promoters to understand the requirements at each stage. Further information on the stages after programme entry can be found in the SCR Assurance and Accountability Framework at <http://sheffieldcityregion.org.uk/scr-integrated-infrastructure-plan/>

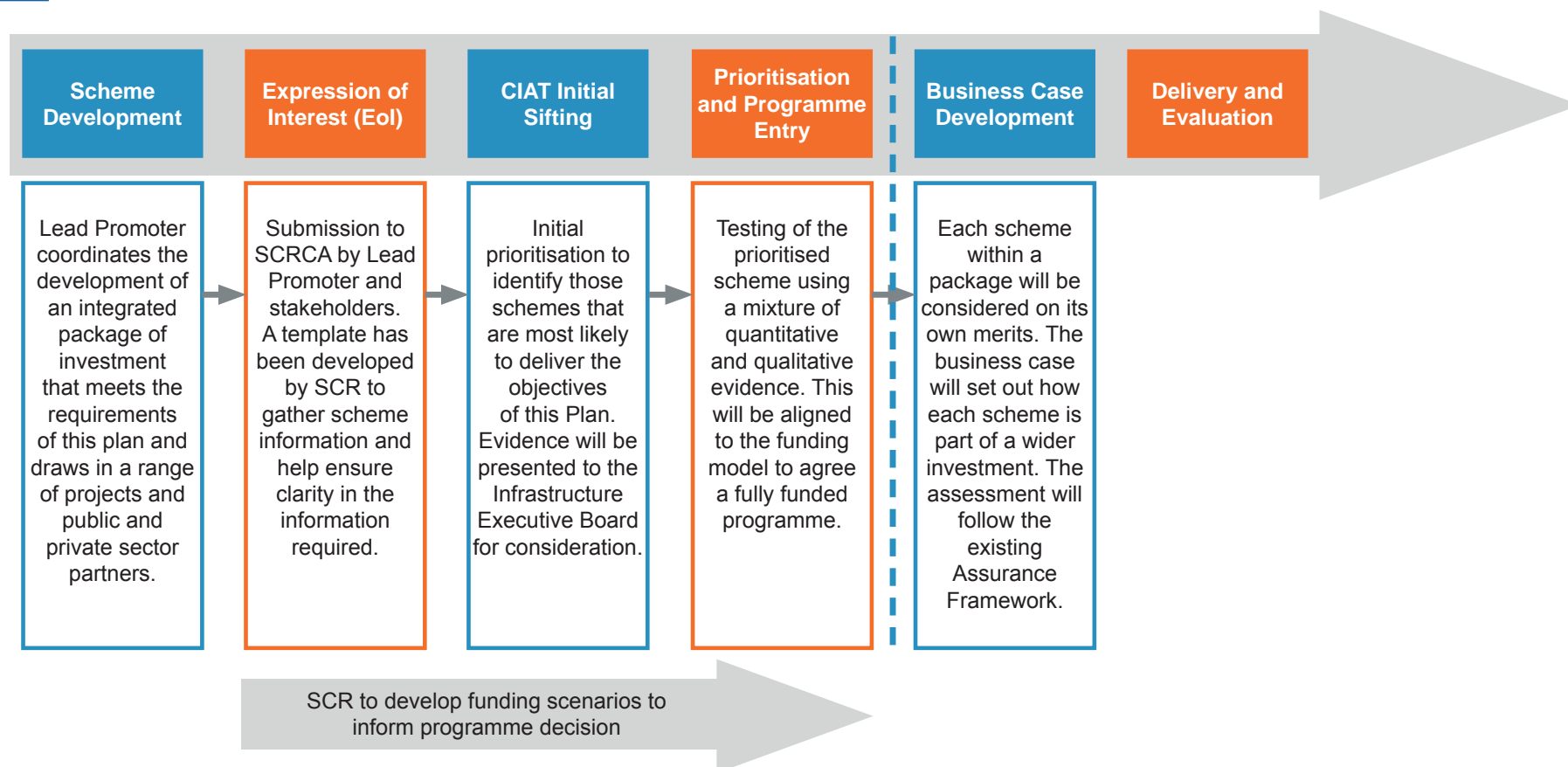


Figure 20: Commissioning Process

3.6 Scheme Development

The first stage of the process begins with scheme promoters who are seeking investment from the SCR Combined Authority. The SCR IIP has been developed to engender a substantially more integrated approach to the way in which schemes are developed and brought forward. The expectation of the Infrastructure Executive Board is that schemes will be integrated in the following ways:

- A package of investment focused on identified challenges or opportunities with a number of discrete projects.
- A partnership between public and private sector, including regulated bodies.
- A funding approach that can demonstrate how SCR investment is leveraging in other funding. Promoters will be expected to explore other funding opportunities before approaching SCR, recognising that some infrastructure sectors have significant funding channels available.

Outlined later in this document are the proposed packages of investment that need further development by Lead Promoters and their stakeholders. This is split into two types of package – by spatial priority areas and

by network challenges. The commissioning approach will ask SCR partners to further develop these packages into propositions for further consideration. This will require input from the public and private sector and regulated bodies to ensure the approach is integrated.

The SCR is not mandating an approach to how the packages are developed from the initial descriptions and underpinning schemes described below. In developing the proposition, the Lead Promoter is advised to consider the information that will need to be provided in the subsequent stages.

The approach provides flexibility for individual schemes to be developed and come forward outside of the packages described later in this document.

3.7 Expression of Interest

The opportunity to express interest in securing funding from SCR Combined Authority will be open to all types of organisations. However, initially, SCR will be seeking to invest in schemes which have a Local Authority partner. Whilst traditionally the focus has been on investment in public sector assets, SCR has developed the approach to include wider investment as this will be critical to our success.

SCR has produced an EoI template for Lead Scheme promoters to complete (this can be found by following this link <http://sheffieldcityregion.org.uk/scr-integrated-infrastructure-plan/>).

The call for Expressions of Interest will be made by the Infrastructure Executive Board of the Combined Authority on an annual basis. This call will be through a time-limited window to allow the Board to consider a number of opportunities alongside one another. The Board will retain the flexibility to hold additional calls to meet a specific need as required.

3.8 Initial Sifting

SCR will undertake an independent assessment of the Expression of Interest documents submitted. This assessment will be used to sift the proposals to identify priority groupings. These groupings will provide the Infrastructure Executive Board with advice on which schemes should be progressed to the next stage. The evaluation criteria will focus on identifying opportunities that demonstrate:

- a. Compliance with the five cases.
- b. Alignment with the objectives and interventions set out in the SCR IIP.
- c. An overarching spatial framework approach that integrates across different sectors (this is the first action for each Infrastructure Package).
- d. Bringing together private and public investment, along with that of regulatory bodies.
- e. Consideration will be given to deliverability to provide flexibility in delivering the programme (a mixture of short and longer term investment will be needed).

3.9 Prioritisation and Programme Entry

At the prioritisation stage, schemes will be accepted onto the programme for further development.

SCR has previously developed a tool for quantifying the potential economic benefits of investment. The FLUTE (Forecasting the interaction of Land-Use, Transport and the Economy) model was developed as a cutting edge mechanism to inform investment decisions, with schemes measured on their net contribution to the SCR economy in terms of GVA per pound invested. SCR partners are currently reviewing the application of this model to provide a more comprehensive approach. While this is under development, it is anticipated that the quantification of economic benefit will remain a key factor in assessing the relative merits of competing investments.

The Lead Promoter will be required to further develop the evidence presented within the Expression of Interest template to provide key inputs that can be used to quantify the potential economic benefits. In addition, greater scrutiny of the desirability and private sector support will be undertaken. Where the Board deems appropriate, a scheme can be 'called in' by the Infrastructure Executive Board so that it can be further understood and key questions asked of the promoter.

3.10 Business Case Development

The appraisal process for business cases is already well developed by SCR and will continue to be used for the management of schemes identified to deliver this plan. The approach is set out in the Accountability and Assurance Framework at:

<http://sheffieldcityregion.org.uk/scr-integrated-infrastructure-plan/>

The associated templates and guidance for the business case process are held by the SCR Executive.

At the time of writing, SCR is considering how to make development funding available where this will advance programme delivery.

3.11 Commissioning of Infrastructure Interventions for Growth Areas & Urban Centres

The subsequent reference packages serve to indicate the strategic infrastructure schemes which should be commissioned through an integrated framework approach to each Growth Area and Urban Centre, cognisant of urban centre masterplans.

It is proposed that infrastructure interventions within Growth Areas and Urban Centres are integrated within a wider framework which articulates the approach to development and growth within these areas, at both a strategic and more localised level. This will:

- Provide a further level of detail that the development market and investors will need in order to understand the proposition, identify opportunities and gain the confidence to invest.
- Provide the basis for investment in strategic infrastructure, by demonstrating the nature of the growth that it will support.
- Ensure that infrastructure requirements and solutions are defined in an integrated (rather than sector specific) manner.
- Provide the basis for engagement and collaborative working with key stakeholders.

Whilst the nature of the framework can be determined by the Lead Promoter in collaboration with their Supporting Promoters, it is anticipated that this would take the form of one or more Supplementary Planning Documents, Planning Statements, Local Development Orders or Outline Planning Consents. In some instances, these may already exist and can be readily utilised, or augmented. This Infrastructure Plan is intended to support and encourage these frameworks, rather than replace them.

These are deliberately not prescriptive, and the identified promoters have the ability to define the preferred solution to overcome the challenge, or realise the opportunity.

Example interventions are generally large-scale and Growth Area or Urban Centre specific, however, this should not restrict future schemes which impact Growth Areas or Urban Centres but where the source of risk, constraint or opportunity lies external to the City Region.

Within the SCR IIP we have focused on our identified Growth Areas which are forecast to deliver the majority of the jobs, growth and homes within the SCR. However, in dynamic and evolving markets this plan must be agile to consider proposals outside of the Growth Areas and Urban Centres, and part of the next stages of the commissioning approach will be to agree the criteria and order of magnitude of impact to qualify sites outside of the scope of the Growth Areas and Urban Centres. This may include the quantum of benefits that can make a strategic impact on the economic outcomes or housing delivery.

3.12 Commissioning - Spatial Infrastructure Packages

3.12.1 Infrastructure Package 1: A61 Corridor

Overarching Framework		Lead Promoter	Supporting Promoters
Agree an overarching masterplan that defines the approach to development and growth and is consistent with the Local Plan		Chesterfield Borough Council	Developers, landowners and investors within the area
Infrastructure Theme Focus	Example Interventions	Lead Promoter	Supporting Promoters
Transport	A1: Reduce forecast delay impact on A61.	Chesterfield Borough Council	Developers and landowners along A61 route
Energy	A2: Interventions to deliver Greener Growth.	Chesterfield Borough Council	Energy Providers
Transport	A3: Reduce forecast delay impact on A619 and A617.	Chesterfield Borough Council	Derbyshire County Council, Bassetlaw District Council, Bolsover District Council
Land and Commercial Property	A4: Infrastructure in Staveley Works area to support development and regenerate 150ha of industrial land.	Chesterfield Borough Council	Developer
Transport	A5: Urban Mobility solutions to improve access to the strategic transport network.	Chesterfield Borough Council	
Flood Risk	A6: Alleviation of flood risk to Chesterfield Rail Station.	Chesterfield Borough Council	Network Rail Environment Agency
Flood Risk	A7: Flood Alleviation Infrastructure within Chesterfield Area.	Chesterfield Borough Council	Property owners and occupiers Environment Agency
Land and Commercial Property Flood Alleviation	A8: Infrastructure to support development of the Avenue and Avenue Flood Balancing Scheme.	Homes & Communities Agency and NEDDC	Chesterfield Borough Council Developers Environmental Agency
Land and Commercial Property	A9: Interventions to provide infrastructure for the Peak Resort site.	Chesterfield Borough Council	Developers
Transport	A10: New transport link to support regeneration of the Staveley Works Area and relieve congestion on the A619 corridor and provide opportunity to enhance links to Markham Vale.	Chesterfield Borough Council	
Land and Commercial Property	A11: 200 acre mixed use development site at Egstow Park forming an urban extension to Clay Cross delivering new homes and serviced employment plots.	Chesterfield Borough Council	Developer
Land and Commercial Property	A12: The Callywhite Lane Industrial Regeneration Project in Dronfield involves site assembly, reclamation of 19 ha of land and road infrastructure providing 47,000 square meters of business units in Use Classes B1 / B2 / B8 and up to 1200 jobs.	Chesterfield Borough Council	Developer

3.12.2 Infrastructure Package 2: Dearne Valley, M1 and Junction 36

Overarching Framework		Lead Promoter	Supporting Promoters
Agree an overarching masterplan that defines the approach to development and growth and is consistent with the Local Plan		BMBC	Developers, landowners and investors within the area
Infrastructure Theme Focus	Example Interventions	Lead Promoter	Supporting Promoters
Transport	DV1: Reduce forecast delay impact on A635 between Barnsley and Doncaster, potentially by providing BRT solution to also address gap in mass transit connection.	BMBC	Doncaster Metropolitan Borough Council
Energy	DV2: Transform the Dearne Valley into one of the lowest carbon communities in the UK within 20 years.	BMBC	Energy Providers
Transport	DV3: Interventions to relieve forecast delay impact on the A6135.	BMBC	Sheffield City Council
Flood Alleviation	DV4: Interventions to reduce flood risk posed by the River Dearne Washlands area.	BMBC	Environment Agency
Transport	DV5: Improve connectivity on the Dearne Valley rail corridor, including interventions to increase frequency of service and provision of Park & Ride facilities.	BMBC	Network Rail Rail North / Transport for the North Train Operating Companies
Land and Commercial Property	DV6: Bring forward development to take advantage of growing logistics and distribution sectors.	BMBC	Developers
Flood Alleviation	DV7: Consider interventions which could alleviate fluvial flooding that limits strategic access across M1.	BMBC	Environment Agency
Energy	DV8: Assess opportunities for integrating infrastructure sectors, such as integrating the Timber Resource Recovery Centre with the town centre district heating network.	BMBC	Energy Consultant / Developer
Utilities	DV9: Address power capacity shortfalls to unlock development along the M1 corridor.	BMBC	Statutory Undertaker / Independent Distribution Network Operator
Transport	DV10: Interventions to public transport and provision of business support to improve attractiveness of development sites in Goldthorpe.	BMBC	SYPT

Infrastructure Theme Focus	Example Interventions	Lead Promoter	Supporting Promoters
Transport	DV11: Provision of transport infrastructure to link area in with any new TransPennine route.	BMBC	Doncaster Metropolitan Borough Council Highways England and/or Network Rail
Transport	DV12: Explore options for improvements to the Dearne valley parkway to improve traffic flows and support growth proposals.	BMBC	
Transport	DV13: Improved public transport connections and support to improve the commercial viability of Gladman Park Enterprise Zone.	SYPT	BMBC
Land and Commercial Property	DV14: Infrastructure to support the development of Thurnscoe Business Park.	BMBC	

3.12.3 Infrastructure Package 2.1: Barnsley Urban Centre & M1 Junction 37

Overarching Framework		Lead Promoter	Supporting Promoters
Agree an overarching masterplan that defines the approach to development and growth and is consistent with the Local Plan		BMBC	Developers, landowners and investors within the area
Infrastructure Theme Focus	Example Interventions	Lead Promoter	Supporting Promoters
Transport	BN1: Interventions to relieve forecast delay impact on the A635 and A637.	BMBC	
Transport	BN2: Encourage more efficient urban mobility through shifting modal share away from private car usage.	BMBC	SYLTE
Transport	BN3: Improve Hallam Line connectivity through increased capacity and quality of services and reduction in journey times.	BMBC	Network Rail Rail North / Transport for the North Train Operating Companies
Transport	BN4: Infrastructure to support J37 Barnsley Urban Growth Area to deliver housing and employment growth alongside a new link road.	BMBC	Developers
Land and Commercial Property	BN5: Provide a package of public realm improvements to Barnsley Town Centre.	BMBC	Developers
Land and Commercial Property	BN6: Interventions to public transport and provision of business support to improve attractiveness of development sites at Capitol Park Enterprise Zone.	BMBC	SYLTE
Transport	BN7: Improve speed, frequency, reliability and quality of services on Penistone Line. Upgrade stations and provide new P&R sites.	BMBC	SYLTE Network Rail Rail North / Transport for the North Train Operating Companies
Transport	BN8: Explore options to increase capacity on A628 Dodworth Road between Junction 37 and Barnsley Town Centre.	BMBC	

3.12.4 Infrastructure Package 3: DN7

Overarching Framework		Lead Promoter	Supporting Promoters
Agree an overarching masterplan that defines the approach to development and growth and is consistent with the Local Plan		DMBC	DMBC, Energy Providers and Developers
Infrastructure Theme Focus	Example Interventions	Lead Promoter	Supporting Promoters
Energy	DN1: Focus on Low Carbon Industry, by identifying key synergies and opportunities for between low carbon sectors in DN7 and increasing energy resilience across SCR.	DMBC	Energy Providers, Developers and Potential Occupants at DN7
Flood Mitigation	DN2: Mitigate flood risk within Growth Area through identification of site-based alleviation methods and directing development out of areas of flood risk.	DMBC	Environment Agency Developers
Land and Commercial Property	DN3: Infrastructure to support Unity Masterplan.	DMBC	Developers
Utilities	DN4: Ensuring utility network is in place to support 'Power Park'.	DMBC	Statutory Undertakers
Transport	DN5: Explore connections to Ferrybridge and Drax multi-fuel storage and Humber renewable fuels terminal.	DMBC	Network Rail Transport for the North Train Operating Companies Power Station Operators
Transport	DN6: Implementation of infrastructure to support a Transport Hub.	DMBC	Network Rail Rail North / Transport for the North Train Operating Companies SYPT

3.12.5 Infrastructure Package 4: Advanced Manufacturing Innovation District

Overarching Framework		Lead Promoter	Supporting Promoters
Agree an overarching masterplan that defines the approach to development and growth and is consistent with the Local Plan		SCC	RMBC, landowners and developers
Infrastructure Theme Focus	Example Interventions	Lead Promoter	Supporting Promoters
Land and Commercial Property	SR1: Infrastructure to support expansion of Advanced Manufacturing Innovation District and enhance connections between Advanced Manufacturing Park, Sheffield Business Park and future development sites including those within Enterprise Zone.	SCC	RMBC, landowners and developers
	SR2: Infrastructure to improve access to Waverley Mixed-Use Development.	Developer	RMBC
Transport	SR3: Reduce forecast delay impact on the A630 and A6178. There is potential for a BRT or light rail solution to achieve this.	Network Rail	RMBC Developers SYLTE
Flood Alleviation	SR4: Interventions to alleviate flood risk in the Lower Don Valley and Rotherham town centre.	SCC	RMBC, Environment Agency, businesses & landowners
Transport	SR5: Multi-modal Access to Waverley/ AMP/ Advanced Manufacturing Innovation District.	SCC	RMBC, Developers, SYLTE
Energy	SR6: Greener Growth: Intervention comprises identification and bringing forward of opportunities for energy generation and supporting a low carbon energy ecosystem.	SCC and Developers	Energy Providers and component suppliers
Waste Management	SR7: Encourage further changes in waste behaviours to minimise growth in waste levels and further consider where a 'closed loop economy' could be achieved.	Waste Management Company	SCC, Residents and Businesses
Land and Commercial Property	SR8: Provision of a package of financial, planning and business support incentives to encourage investment in Templeborough.	RMBC	RMBC and Developers
Land and Commercial Property	SR9: Infrastructure to support the success of the Olympic Legacy Park and delivery of education, research and community facilities.	SCC	Developers
Transport	SR10: Interventions to relieve forecast delay impact at M1 J34	Highways England	SCC, RMBC

3.12.6 Infrastructure Package 4.1: Rotherham Town Centre

Overarching Framework		Lead Promoter	Supporting Promoters
Agree an overarching masterplan that defines the approach to development and growth and is consistent with the Local Plan		SCC	RMBC, landowners and developers
Infrastructure Theme Focus	Example Interventions	Lead Promoter	Supporting Promoters
Flood Alleviation	SR4: Interventions to alleviate flood risk in the Lower Don Valley and Rotherham town centre.	SCC	RMBC, Environment Agency, Businesses and Developers
Transport	SR11: Interventions to relieve forecast delay impact on the A633 between Rotherham and the Dearne Valley.	RMBC	BMBC and Developers
Transport	SR12: Improving connections such as public transport and cycle links in the Advanced Manufacturing Innovation District between Rotherham and Sheffield.	RMBC	SCC and Developers
Transport	SR13: Creation of a new heavy rail station to provide access to mainline rail services to key regional destinations.	RMBC	Network Rail
Land and Commercial Property	SR14: Implementation of the Rotherham Town Centre Masterplan (SPD)	RMBC	Developers
Transport	SR15: Interventions to relieve forecast delay impact on the A6178 through the Lower Don Valley.	RMBC	SCC and SYPTE
Transport	SR16: An additional tram-train stop at Magna/Templeborough to improve access to employment opportunities and support economic growth.	RMBC	SYPTE Network Rail Tram Operator

3.12.7 Infrastructure Package 5: Markham Vale and Bolsover

Overarching Framework		Lead Promoter	Supporting Promoters
Agree an overarching masterplan that defines the approach to development and growth and is consistent with the Local Plan		Bolsover District Council.	Derbyshire County Council
Infrastructure Theme Focus	Example Interventions	Lead Promoter	Supporting Promoters
Land and Commercial Property	MV1, MV2 and MV3: Delivery of employment land, of which some has Enterprise Zone Status.	Derbyshire County Council	Developers
Land and Commercial Property	MV4: Infrastructure to support regeneration of the former Coalite site.	Bolsover District Council	Developers

3.12.8 Infrastructure Package 6: Doncaster Sheffield Airport Corridor and Doncaster

Overarching Framework		Lead Promoter	Supporting Promoters
Agree an overarching masterplan that defines the approach to development and growth and is consistent with the Local Plan		DMBC	DMBC, Statutory Providers and Developers
Infrastructure Theme Focus	Example Interventions	Lead Promoter	Supporting Promoters
Transport	DSA1: Doncaster Sheffield Airport Surface Access & Onsite Airside Infrastructure improvements, which could comprise better bus services, a community rail station and increased air freight handling capability.	DMBC	Developers, Network Rail, Train Operating Companies, Bus Operators, SYPTE
Transport	DSA2: A1/M18 Junction improvements.	Highways England	DMBC
Land and Commercial Property	DSA3: Continued investment in iPort Rossington, supporting growth in the logistics sector.	DMBC	Developers
Transport	DSA4: Reduce forecast delay on the A630 and A6182.	DMBC	
Transport	DSA5: Alleviate capacity constraints at Doncaster Rail Station.	Network Rail	DMBC
Energy	DSA6: Improve Urban Mobility, which could include interventions to improve local access and release capacity on the strategic transport network.	DMBC	
Energy	DSA7: Support Greener Growth and Low Carbon Development in Doncaster	DMBC	Energy Providers and component suppliers
Flood Alleviation	DSA8: Doncaster Flood Risk interventions could include exploring opportunities for integration of blue and green infrastructure.	DMBC	Environment Agency

3.12.9 Infrastructure Package 7: Sheffield City Centre

Overarching Framework		Lead Promoter	Supporting Promoters
Agree an overarching masterplan that defines the approach to development and growth and is consistent with the Local Plan		Sheffield City Council	Developers
Infrastructure Theme Focus	Example Interventions	Lead Promoter	Supporting Promoters
Telecommunications and Broadband	S1: Encourage investment in superfast and ultrafast broadband through demand stimulation.	Sheffield City Council	Broadband Providers
Transport	S2: Provide a package of transport connectivity improvements to connect the SCR HS2 station to the wider region.	Sheffield City Council	Network Rail Train Operating Companies Tram Operator
Transport	S3: Provide an integrated package of highway improvements, tram extensions, and world-class pedestrian and cycling infrastructure around the city centre and its radials, with consideration given to Smart Mobility solutions.	Sheffield City Council	BMBC, RMBC, Chesterfield Borough Council
Flood Alleviation	S4: Alleviating Strategic Flood Risk within Sheffield City Centre by integrating flood alleviation schemes, SuDs and water management schemes.	Sheffield City Council	Environment Agency Developers, landowners and businesses
Energy	S5: Identify and bring forward opportunities for Greener and Low Carbon Growth.	Sheffield City Council	Energy Providers and component suppliers.
Waste Management	S6: Increase in waste management capability to meet projected shortfall in capacity, and move up waste hierarchy. Potential to integrate with energy, housing and property (heat generation).	Sheffield City Council	Waste Management Company
Land and Commercial Property	S7: Infrastructure to support Sheffield Retail Quarter.	Sheffield City Council	Developers
Utilities	S8: Investment in electricity distribution network in Sheffield city centre.	Sheffield City Council	Electricity Company Developers
Transport	S9: Implementation of West End Transport Masterplan.	Sheffield City Council	SYPT Tram Operator
Flood Alleviation	S10: The Upper Don Flood Alleviation Scheme to improve the flood resilience of Sheffield City Centre by mitigating flood risk.	Sheffield City Council	Environment Agency Businesses & Landowners
Transport	S11: Interventions to remodel Sheffield Station to provide greater capacity and frequency of services.	Network Rail	Sheffield City Council
Transport	S12: Interventions to improve the Inner Ring Road as part of the Key Route Network.	Sheffield City Council	Businesses & Developers

3.12.10 Infrastructure Package 8: Worksop

Infrastructure Theme Focus	Example Interventions	Lead Promoter	Supporting Promoters
Transport	W1: Identify opportunities to increase urban mobility, including access to the Worksop Rail line and town centre.	Bassetlaw District Council	Nottinghamshire County Council
Waste Management	W2: Identify sites for a small-medium sized waste treatment facility.	Nottinghamshire County Council	Bassetlaw District Council
Flood Alleviation	W3: Interventions to alleviate surface water and flood risk in Worksop.	Bassetlaw District Council	Environment Agency

3.12.11 Infrastructure Package 9: Retford

Infrastructure Theme Focus	Example Interventions	Lead Promoter	Supporting Promoters
Flood Alleviation	RE1: Raise the standard of flood protection at Retford Beck, Grove Lane, Blackstope Lane.	Bassetlaw District Council	Environment Agency
Flood Alleviation	RE2: Chancery Lane Flood Alleviation and improving standard of protection.	Bassetlaw District Council	Environment Agency Network Rail
Waste Management	RE3: Identify sites for a small-medium sized waste treatment facility.	Nottinghamshire County Council	Bassetlaw District Council
Transport	RE4: Identify opportunities to increase urban mobility in Retford, including access to rail station and employment in the centre.	NCC and Bassetlaw District Council	Nottinghamshire County Council and Bassetlaw District Council

3.12.12 Infrastructure Package 10: Matlock

Infrastructure Theme Focus	Example Interventions	Lead Promoter	Supporting Promoters
Flood Alleviation	M1: Explore economic case for defending the A615 and properties at risk in Matlock.	Derbyshire Dales District Council	Environment Agency
Transport	M2: Explore opportunities to improve connectivity between Matlock and Sheffield, including increased frequency of bus services.	Derbyshire Dales District Council	Derbyshire Dales District Council
Transport	M3: Identify opportunities to increase urban mobility in Matlock, including access to rail station and employment in the centre.	Derbyshire Dales District Council	Derbyshire Dales District Council
Land and Commercial Property	M4: Infrastructure to support the development sites – Cawdor Quarry and Halldale Quarry.	Derbyshire Dales District Council	Developers
Waste Management	M5: Increase in waste water treatment capacity to facilitate growth in employment and housing in Matlock.	Derbyshire Dales District Council	Sewerage Company

3.13 Network Priorities

3.13.1 Strategic Transport Network

Local Authority Area	Junction Capacity Interventions	Corridor Interventions (Those Not Covered in Infrastructure Packages 1 – 10)	Lead Promoter	Supporting Promoters
Barnsley	Yes		Barnsley Metropolitan Borough Council	
Bassetlaw	Yes		Nottinghamshire County Council	Bassetlaw District Council
Bolsover	Yes		Nottinghamshire County Council	Bolsover District Council
Chesterfield	Yes		Derbyshire County Council	Chesterfield Borough Council
Derbyshire Dales	Yes		Derbyshire County Council	Derbyshire Dales District Council
Doncaster	Yes		Doncaster Metropolitan Borough Council	
NE Derbyshire	Yes		Derbyshire County Council	NE Derbyshire District Council
Rotherham	Yes		Rotherham Metropolitan Borough Council	
Sheffield	Yes	A616 Stocksbridge – M1 A6102 Sheffield - Stocksbridge	Sheffield City Council	Barnsley Metropolitan Borough Council

3.13.2 Other Network Interventions

Other schemes proposed in the Utilities, Telecoms, Waste and Energy sectors that fall out with the Infrastructure Packages listed above can be brought forward as standalone schemes for consideration by SCRCA through the EOI process. In some cases, it is anticipated that these would be guided by overarching strategies, such as that proposed for the Low Carbon Ecosystem.

4 Indicative Order of Magnitude Costs

Overview

In order to give a sense of scale of the proposed investment in strategic infrastructure across SCR over the period of this Plan, a high level 'order of magnitude' cost estimate has been derived through a benchmarking process.

This section presents a summary of the cost estimate, with further detail provided separately in Annex F- Infrastructure Costs Benchmarking.

Key Cost Assumptions

The following assumptions were applied in producing the cost estimates:

- Those interventions that are within SCR that would be delivered by SCR Partners, the private sector or regulated industries with regional operations (e.g. electricity, water) have been included and fall within the scope of the SCR 'infrastructure bill.' Ultimately, it has been assumed that the businesses and residents of SCR will need to fund this infrastructure development, or Government will need to provide grant funding to SCR Partners to permit their implementation.
- Those interventions that are within SCR, but would be delivered by national partners such as Highways England or Network Rail, have not been included, on the basis that these costs would be borne at a national level and funded through Central Government programmes.
- Those interventions that form part of broader national or pan-northern programmes, such as HS2 and Transport for the North, have not been included, as these schemes are assumed to be funded through Central Government programmes.
- The costs are generally deemed to include capital costs and professional fees, but exclude employer's direct costs, land purchase costs, finance and legal costs and VAT. Revenue costs are included only as stated.
- Optimism bias has been included at 44% on capital expenditure based on standard civil engineering projects.

Limitations

The following limitations apply to the cost estimates:

- The solutions to the infrastructure challenges and opportunities are not yet defined (this being the task of the identified promoters), and therefore only high level costs can be provided, benchmarked against examples elsewhere.
- The high level nature of the costing means that costs for delivering individual schemes cannot be provided with accuracy. A degree of cost risk distribution can be achieved by looking at sectors and packages, as opposed to individual schemes.
- In some cases, the data is not available to support a well evidenced cost assumption, and therefore the assumption will remain highly indicative.

Infrastructure Costs by Sector

Indicative infrastructure cost estimates by sector are provided in Table 3

Infrastructure Sector	Indicative Order of Magnitude Cost (£)
Land & Commercial Property	4,182m
Housing	11,361m
Flood Risk	207m
Utilities	113m
Telecommunications	10m
Transport	1,587m
Waste	942m
Energy	1,236m
SCR Value (£) Nett of Optimism Bias	19,638m
Optimism Bias at 44%	8,641m
SCR Value (£)	28,279m

Table 3: Indicative Infrastructure Costs by Sector

Infrastructure Costs by Package

Indicative costs for each infrastructure package are provided in Table 4.

Infrastructure Sector	Indicative Order of Magnitude Cost (£)
IP1: A61 Corridor & Chesterfield	924m
IP2: Dearne Valley, M1 and Junction 36	1,488m
IP2.1: Barnsley Urban Centre and M1 Junction 37	141m
IP3: DN7	1,194m
IP4: Advanced Manufacturing Innovation District	1,186m
IP4.1: Rotherham Town Centre	107m
IP5: Markham Vale & Bolsover	149m
IP6: RHADS Corridor & Doncaster	1,780m
IP7: Sheffield City Centre	4,276m
IP8: Worksop	170m
IP9: Retford	208m
IP10: Matlock	241m
SCR Package Value (£) Nett of Optimism Bias	11,864m
Optimism Bias at 44%	5,220m
SCR Package Value (£)	17,084m

Table 4: Indicative Infrastructure Costs by Package

5 Funding Options

5.1 Introduction

A broad range of funding options have been considered that could support the delivery of infrastructure across SCR, see Annex E – Funding Options Report. These are based on traditional and more innovative approaches, and informed by examples from elsewhere in the UK. Working with SCR finance and economic development experts, these have been refined down to a shortlist of options.

5.2 Funding Context

Many of the traditional public funding sources, e.g. central government grants and council tax receipts, are currently stretched protecting front-line services. Added to which central government grants are inherently uncertain in terms of quantum and timing making it difficult to plan long-term over multiple finance settlement periods. Whilst there may be limited scope to free up surpluses within these sources, increasingly new sources will be required to provide additionality in resources which could enable investment without displacing core services.

Financing & Funding

The terms financing and funding are sometimes used interchangeably but there are subtle yet important differences:

- **Financing** – the financial arrangements put in place to provide committed capital to meet the costs of a project as they arise. This is usually required to meet the substantial upfront CapEx costs to build a project and can be in the form of debt (e.g. bank loans) or equity. The cost of financing (e.g. debt interest payments) will need to be met from funding sources.

- **Funding** – the sources of revenue for a project that will be used to satisfy the capital and revenue costs (both operating and financing costs) over time. It addresses the fundamental question of who pays for the asset in the end, i.e. who bears the ultimate burden of meeting the costs incurred. Who pays can usually be answered in terms of the taxpayer pays or the user pays.

Local authorities can reduce the financing requirement for a project, e.g. by contributing some existing or new capital grant allocations or by selling an asset to raise the capital. This may reduce – or eliminate – the financing requirement or it may leave a gap between sources and requirements.

Identifying ongoing revenue to support financing raised (as well as the operating and maintenance requirements of the asset) is more challenging, however, and is often the most difficult issue which prevents projects proceeding.

This Plan primarily focuses on different potential funding sources available to either the SCR or its member districts who could support SCR financing through partner contributions, or finance projects directly.

5.3 Methodology

This analysis has been undertaken through a desk-based review of relevant literature, coupled with Arup's global experience of the implementation of different funding sources available to different cities. Based on the above, we have identified a broad list of potential funding mechanisms that may be applicable to the SCR or its member districts. For a full explanation of each funding source and the detailed discussion of the benefits and risks, as well as some of the implications of each tool, please see Annex E – Funding Options Report.

5.4 Funding Sources

The matrix below summarises the different funding sources discussed in greater detail in Annex E – Funding Options Report, categorised based on a qualitative judgment of the:

- Volatility of the funding source in terms of reliance when investing in new infrastructure projects (factors such as known baseline versus uncertain forecasts, within SCR/ member district control or third party negotiations, cost to implement, etc.); and
- Quantum in terms of the level of funding required to deliver the infrastructure project.

These allocations are only indicative to provide context.

The majority of the funding sources set out are flexible with regards what infrastructure type they can be applied to. Grant funding from EU and central government is often ring-fenced for specific purposes, although most central government grants are now provided without these stipulations and although provided for a specific purpose, can be used as local authorities determine most appropriate.

Many of the items set out are general tax raising measures and the proceeds can be directed to where local authorities deem most appropriate. These measures are only limited by the conditions set out in the statutory instruments bringing them into force, however some would require new national legislation or a local voluntary agreement, e.g. a hotel/tourist tax.

	Lower Quantum	Medium Quantum	Higher Quantum
Higher Volatility	<ul style="list-style-type: none"> ■ Third party contributions ■ Section 106 	<ul style="list-style-type: none"> ■ Community Infrastructure Levy ■ Crowd funding ■ Tax Incremental Financing ■ Revenue Generating Assets (trading) 	<ul style="list-style-type: none"> ■ User fee / toll collection ■ Payment by results ■ Repatriation of other national taxes
Medium Volatility	<ul style="list-style-type: none"> ■ EU grants ■ Central Government LEP funding ■ Central Government grants 	<ul style="list-style-type: none"> ■ Revenue generating assets (charging) ■ Workplace parking levy 	<ul style="list-style-type: none"> ■ Business rate supplement ■ Council tax precept ■ Special purpose local taxes
Lower Volatility	<ul style="list-style-type: none"> ■ Surplus asset sales 	<ul style="list-style-type: none"> ■ Council tax ■ Business rates 	

■ Core mechanism currently utilised by SCR LAs

■ Incremental: Limited local impact

■ Incremental: local impact

Figure 21: Funding Sources Matrix

Case Study: Crossrail



Crossrail is a new fast, high frequency, high capacity railway from Reading, Maidenhead and Heathrow in the west, through central London to Shenfield and Abbey Wood in the east.

Based on original cost estimates in 2007, central government announced a funding package of £15.9 billion. In June 2010, HM Treasury required the Department for Transport (DfT) to reduce its costs as part of the comprehensive spending review and the funding package was revised to £14.8 billion.

The expected contributions are:

- £4.8 billion (32%) direct from DfT;
- £1.9 billion (13%) direct from TfL (underpinned by future Crossrail users’ fare revenues);
- £5.8 billion (39%) from businesses; and
- £2.3 billion (16%) direct from Network Rail.

The responsibility for collection of contributions from businesses was split between both DfT (£0.48 billion) and TfL (£5.2 billion), with a further £0.1 billion to be raised by the City of London Corporation working with the Mayor of London and Government:

Responsible Party	Funding Source
Department for Transport	£250m City of London Corporation
	£230m Heathrow Airport Limited
Transport for London	£4.1 billion Business Rate Supplement
	£300m Community Infrastructure Levy
	£300m Section 106 planning obligations
	£500m Surplus asset sales
Voluntary Funding	£100m Third party contributions

The Crossrail funding package highlights the often complex and necessary combination of funding sources needed to deliver a major infrastructure project, mixing both public and private sources.

5.5 Next Steps

Once a clear package of projects and programmes has been identified, an effective funding package can be put in place, and at this stage SCR will identify which sources might be appropriate given the project specifics.

As many of the funding sources identified above fall within the purview of local billing partners, the City Region will need to consider how it can best align costs that may fall locally, against benefit that may be felt regionally.

Equally, where local partners are asked to consider funding SCR infrastructure investment, it is likely that 'one size fits all' solutions (such as Council Tax precepts) may be unpalatable. Instead, the City Region may be able to consider funding calls on partners, but then afford those partners the flexibility to determine within their own individual circumstance how to meet that call. This could see some partners contributing revenue funding to support regional borrowing, or others contribute capital funding if that is more advantageous for them.

A key challenge in implementation will therefore be making the link between paying extra and the benefit to be derived. In addition, given there will ultimately be a limit to the capacity for each source of funding, SCR will need to prioritise which items of infrastructure should benefit from what is available.

6 A Successful Legacy

As with other major infrastructure programmes such as the London 2012 Olympics, the success of the Plan will be judged by its ability to achieve successful outcomes; and it is not just provision of the infrastructure in itself that will do this, but the conditions for growth that it creates. The strategic and flexible nature of this Plan ensures that it should be resilient, against a backdrop of future social, technological, economic, environmental and political change.

And our bespoke approach to commissioning has been designed to be outcome focused and aligned with the objectives set out in the Strategic Economic Plan, whilst at the same time allowing SCR the freedom to identify the solutions that work for us and our local areas, with a view to preparing for the future, not replicating the past.

Delivering this Plan would help to make SCR investment ready, enabling it to play a key part in creating the Northern Powerhouse, effectively respond to the newly established National Infrastructure Commission. With greater devolution over powers and funding secured in the 2015 SCR Devolution Deal, this Plan stands the City Region in good stead as it takes greater control over its future economic prosperity.

Achieving a successful legacy for the SCR can be promoted through the following:

- **Achieving Infrastructure Delivery:** Apply the Commissioning Approach to deliver a step change in infrastructure provision across SCR.
- **Maintaining and Strengthening Stakeholder Relationships:** Build on the relationships and connections generated through this Plan to establish working groups and collaboratively deliver strategic infrastructure packages.
- **Communicate the Plan Content and Progress:** Develop a plan to communicate progress in delivering this Plan at regular milestones, including through Infrastructure Summits and events to attract investment from both the UK and overseas.
- **Ensure the Longevity of the Infrastructure Delivery Group:** Broaden the remit and terms of reference of this group to not only guide infrastructure planning, but to include stakeholders who can support infrastructure delivery.
- **Regularly Review this Plan:** Refresh the Plan at regular intervals to take account of external factors and influences, and progress made in its delivery.
- **Align with the wider economic ecosystem:** Review and iterate this Plan to respond to those of the other work streams focused on delivering economic growth across SCR.
- **Achieve Closer Spatial Integration:** Over time, work together to more closely align land use planning with infrastructure investment, to achieve greater efficiencies and adapt to emerging trends and drivers.

7 Annexes

Copies of the following annexes to this report are available upon request from the SCR Executive.

Annex A	FLUTE Modelling Report
Annex B	Evidence Review & Analysis
Annex C	Analysis of Challenges & Opportunities for Growth
Annex D	Analysis of the SCR labour market's capability to deliver the SCR Infrastructure ambition
Annex E	Funding Options Report
Annex F	Infrastructure Cost Benchmarking

Sheffield City Region

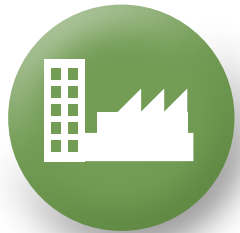
For further information on
this submission please contact:

Sheffield City Region Executive

11 Broad Street West
Sheffield
S1 2BQ

t +44 (0) 114 220 3400

e enquiries@sheffieldcityregion.org.uk



ARUP