Sheffield Local Plan

Transport Assessment: Interim Report on Public Transport and Active Travel Impacts and Potential Mitigation

September 2023

SYSTRA

TRANSPORT ASSESSMENT: INTERIM REPORT ON PUBLIC TRANSPORT AND ACTIVE TRAVEL IMPACTS AND POTENTIAL MITIGATION

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1. EXECUTIVE SUMMARY

1.1 Context

1.1.1 Sheffield City Council (SCC) wish to update their Local Plan and have commissioned SYSTRA to support them with this task and in developing mitigations against potential transport impacts of the Local Plan.

1.1.2 This is a complex undertaking which comprises a number of work stages. In late 2022 / early 2023, SYSTRA provided strategic transport modelling support to model the anticipated transport implications of the Local Plan developments. More recently, the project has moved into a more detailed analytical phase along with the consideration of potential mitigation measures.

1.1.3 SCC have developed a series of Local Plan options corresponding to differing levels of development intensity. The Council's agreed spatial option maximises sites in the urban area, whilst allowing consideration of brownfield sites in the Green Belt that adjoin the existing urban area, striking a balance between provision of new homes and protection of the environment. This work focusses on the preferred spatial option site allocations comprising of 28,067 homes and 1.04 million square metres of employment floorspace.

1.2 Purpose of this Report

1.2.1 The purpose of this report is to summarise the approach to and findings of the public transport and active travel Local Plan modelling work, and to set out the public transport and active travel mitigation measures which SYSTRA considers necessary to ensure that the Local Plan sites will exceed the “status quo” public transport/active travel mode shares which have formed the basis of the modelling approach.

1.2.2 The report is accompanied by a number of Appendices (A to E), which contain maps providing a visual representation of each of the large Local Plan sites, as well as clusters of smaller sites. The maps show SYSTRA’s proposed public transport and

active travel mitigation measures relative to Sheffield's current and planned transport network.

1.3 Local Plan Assumptions

1.3.1 The impacts of the Local Plan have been assessed for two forecast years (2029 and 2039), focusing on a comparison with a Reference Case scenario. The Reference Case scenario includes committed land-use developments and transport schemes, which are independent of the scheme being tested, with overall demand for travel controlled to national forecasts (from Department for Transport).

1.3.2 The Local Plan includes developments at approximately 400 sites, ranging from very small sites containing only a few dwellings to large sites with more than 1,000 dwellings or more than 100,000 square metres of employment space. The sites are primarily located in the city centre and surrounding areas, in the Lower Don Valley, along the A61/A6102 corridor and in the suburban areas in the south-east of the city.

1.3.3 Figure 1 below shows the spatial distribution of the Local Plan sites across the Sheffield area.

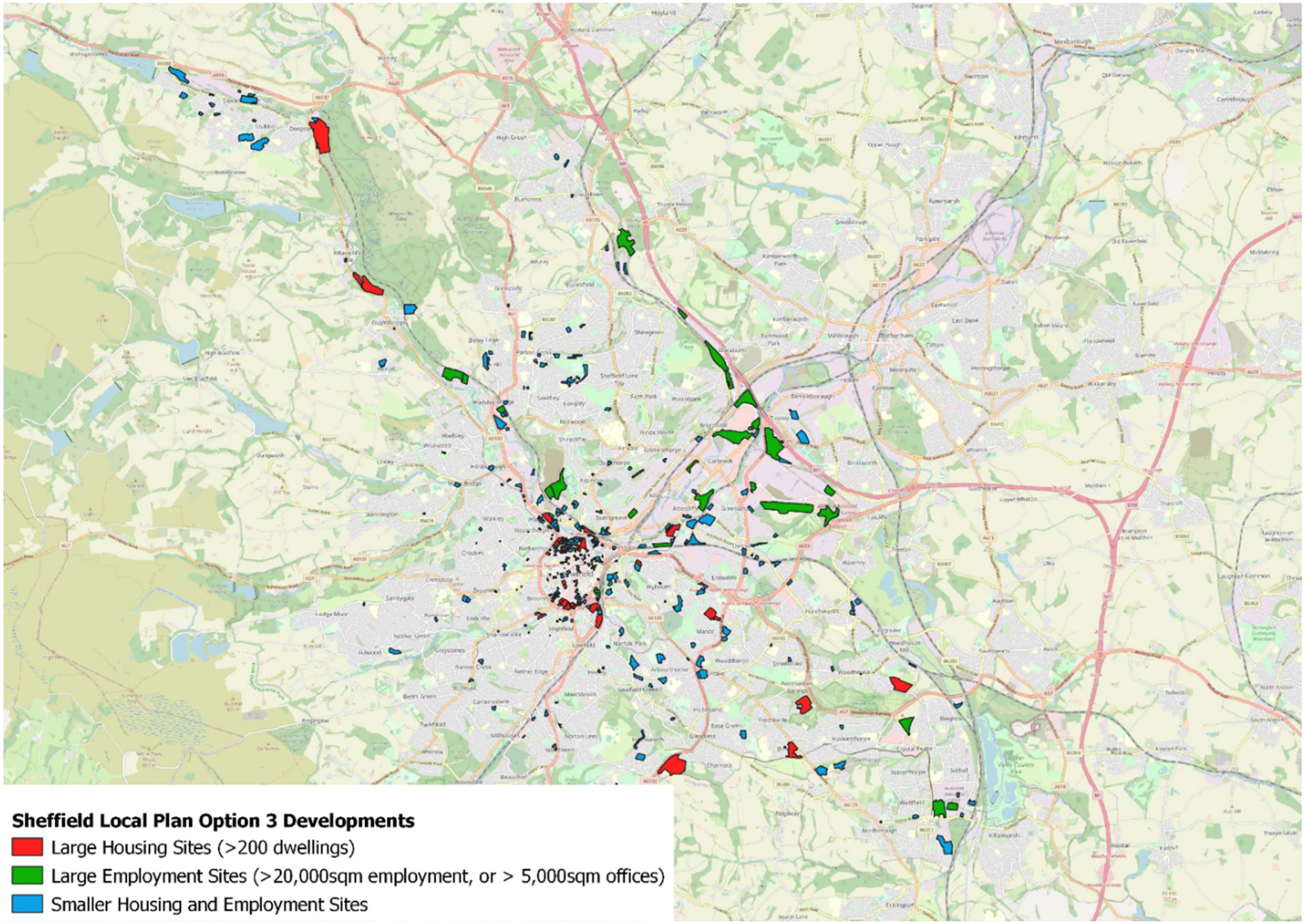

Figure 1. All Local Plan Sites

1.4 Public Transport and Active Travel Impacts

1.4.1 Additional travel by public transport and active modes (walking and cycling) resulting from Local Plan developments has been quantified and analysed using the strategic model.

1.4.2 The demand forecasts are meaningful at the broad level, but less reliable at a local level (e.g. by bus stop) due to model limitations. The assessment of public transport and active travel mitigation measures necessary to support the Local Plan considers wider policy aims and good practice, as well as modelling outputs.

1.4.3 The most significant impact on public transport is increases in tram flows due to the concentration of Local Plan sites along the tram lines. Forecasts indicate increases of up to 16 passengers per tram on the Meadowhall line (for context, each tram has a capacity of around 250 passengers, meaning an expected increase of c.6% of total capacity).

1.4.4 There is a clear focus of additional public transport demand in the city centre, which is already well served by public transport. Outside of the city centre, there is limited additional public transport demand in the vicinity of rail stations, although there are several Supertram stops with the potential to attract significant additional ridership – the largest anticipated increase in 2039 is around 450 one-way trips per hour at West Street, which is slightly under the capacity of two tram vehicles.

1.4.5 Active travel demand is forecast to be widely dispersed, albeit with a general focus in the city centre. There is a cluster of around 1,200 planned dwellings and 32,000sqm mixed use floorspace south of St Mary's Gate, which is the area expected to generate the largest volume of active travel demand.

1.4.6 It is anticipated that significant active travel demand will also be generated by a leisure development at the site of the former Sheffield Ski Village, and by an office development at the Olympic Legacy Park in Attercliffe.

1.4.7 Capacity constraints are unlikely to be an issue for active modes. Therefore, areas where significant increases in active travel are forecast have been used to identify locations and potential routes where the quality of active travel provision has been prioritised for review as part of the mitigation analysis.

1.5 Mitigation Measures

1.5.1 SYSTRA's mitigation analysis has taken into account the impacts of the Local Plan on public transport and active travel demand flows, as well as 'best-practice' transport planning principles, to encourage uptake of public transport/active and to complement both Sheffield's current transport network and planned improvements.

1.5.2 SYSTRA has considered large Local Plan sites and notable clusters of smaller sites. Bespoke mitigation measures have been developed for each site/cluster of sites, in order to encourage access of Local Plan developments by public transport and active travel

1.5.3 The proposed mitigation measures have not been costed at this stage, although it is envisaged that most measures will be fundable through Section 106 and/or CIL contributions.

1.5.4 SCC provided feedback to an indicative list of mitigation interventions in late June 2023, which has been incorporated into the presentation of mitigation measures within this report and its appendices. A summary of the proposed mitigation measures broken down by intervention type is presented in Table 1 below.

Table 1. Summary of Proposed Interventions by Type

INTERVENTION TYPE	INTERVENTIONS PROPOSED
New active travel links (footways and cycleways) following likely pedestrian and cyclist desire lines	54
Improvements to bus stops (e.g. provision of upgraded shelters, Real Time Passenger Information)	47
Assessing the quality of existing active travel links/wayfinding, with improvements where necessary	18
Installation and upgrading of crossings in the vicinity of Local Plan sites to aid active travel and calm traffic	12
Changes to bus services (frequency and/or routeing) to better serve Local Plan sites	11
Improving pedestrian access (e.g. crossings/footway improvements) to bus stops closest to Local Plan sites	9

1.6 Next Steps

1.6.1 SYSTRA has produced three other technical reports detailing the modelling approach and highway impacts, which document the particular workstreams in greater detail:

- Summary Report on Strategic Modelling Results (*September* 2023)
- Report on Strategic Road Network Impacts and Potential Mitigation (*September* 2023)
- Report on Local Road Network Impacts and Potential Mitigation (*September* 2023)

1.6.2 Specific next steps in relation to the Public Transport and Active Travel workstream would be:

- Contribute to and shape the way Sheffield's sustainable transport strategy is presented as the linchpin of the Local Plan
- Explore the potential for corridor modal shift using the best available tools
- Undertake further liaison with SCC regarding the Infrastructure Delivery Plan (IDP) in terms of mitigation schemes, timing, costs etc.

- Undertake high-level costing of proposed public transport and active travel mitigation measures specifically designed to serve the Local Plan sites

2. INTRODUCTION

2.1 Background

2.1.1 SYSTRA has previously provided initial strategic transport modelling support to inform Sheffield City Council (SCC) on transport implications of Local Plan.

2.1.2 Assessed impacts of the preferred Local Plan option on public transport network in Sheffield City centre and in the vicinity of significant development sites are presented in this report. The work has utilised the Sheffield City Region Transport Model Version 1 (SCRTM1) which is a strategic transport model designed to estimate the effect of changes in transport infrastructure and travel cost upon patterns of demand, to predict traffic volumes and speed on each section of the road network, and to forecast public transport ridership by service.

2.1.3 The results presented in this report are preliminary; further inputs and stakeholder sign-offs are required before the work can be considered as a comprehensive transport evidence base.

2.1.4 This report should be read in conjunction with the reports documenting other workstreams, specifically:

- ***Summary Report on Strategic Modelling Results (September 2023)*** – documenting the strategic modelling work undertaken and the expected city-wide demand changes as a result of the Local Plan.
- ***Report on Strategic Road Network Impacts and Potential Mitigation (September 2023)*** – documenting the SRN road capacity analysis undertaken using a range of modelling tools and techniques along with preliminary recommendations for mitigation measures.
- ***Report on Local Road Network Impacts and Potential Mitigation (September 2023)*** – documenting the LRN road capacity analysis undertaken using a range of modelling tools and techniques along with preliminary recommendations for mitigation measures.

2.2 Consultation

2.2.1 In addition to the technical components of the work, SYSTRA have also consulted with South Yorkshire Mayoral Combined Authority (SYMCA) with regards to the current and future status of the three main public transport networks in Sheffield (i.e. rail, tram and bus) as well as the existing and planned provision of active travel infrastructure across Sheffield. The methodology, key assumptions and ongoing progress have been presented to, and discussed with, SYMCA as the work has progressed.

2.3 Purpose of this Report

2.3.1 The purpose of this report is to summarise the findings of the modelling approach and proposed public transport and active travel mitigation measures. In deriving mitigation measures SYSTRA has aimed to ensure that proposed infrastructure and services will promote and maximise the use of public transport and active travel options.

2.3.2 The report is structured as follows:

- Chapter 3 – sets out the technical approach;
- Chapter 4 – summarises the findings of the modelling approach;
- Chapter 5 – outlines committed and planned public transport and active travel improvements within Sheffield which have been considered a baseline for defining potential mitigation measures;
- Chapter 6 – provides a summary of potential public transport and active travel mitigation measures to be delivered alongside the Local Plan site allocations;
- Chapter 7 – provides a summary of the report; and
- Appendices A to E – contain GIS maps and complementary text which visually represent and describe the Local Plan site allocations with regards to existing and proposed public transport and active travel opportunities.

3. TECHNICAL APPROACH

3.1 Choice of Transport Model

3.1.1 In order to support the development of the Local Plan, a multi-modal transport model, called Sheffield City Region Transport Model Version 1 (SCRTM1), has been used. This model was developed by the South Yorkshire Mayoral Combined Authority (SYMCA). The SCRTM1 variable demand model (VDM) is designed to estimate the effect of changes in transport infrastructure and travel cost upon patterns of demand. The public transport assignment model which calculates ridership on each service was used to assess impacts of the Local Plan on bus, tram and rail networks.

3.1.2 A full description of SCRTM1 is provided within the Summary Report on Strategic Models Results.

3.2 Scenarios

3.2.1 SCRTM1 was calibrated to represent travel demand and supply as of a base year 2016.

3.2.2 Transport demand, capacity impacts and mitigation requirements have been assessed for the following scenarios:

- Reference Case scenario for 2029 and 2039. Building on the base year model. Travel related to committed land use changes are included and overall travel demand is controlled to be consistent with Department for Transport's National Trip End Model. Transport infrastructure and service changes that occurred after the base year or are committed for delivery are included in the Reference Case scenarios. The Reference Case does not include local plan developments.
- With Local Plan for 2029 and 2039. Building on the Reference Case scenarios with the addition of travel demand related to the Local Plan allocations.

3.2.3 In the reference case forecast it has been assumed that:

- the Supertram service will continue with a frequency of 6 trams per hour;
- park and ride sites are included at Magna and Rotherham Parkgate; and

- bus services are updated ...to reflect changes introduced by the Connecting Sheffield[1] schemes for the City Centre and Housing Zone North.

3.3 Public Transport and Active Travel Demand Forecasting

3.3.1 As set out within Section 4.4 of the Summary Report on Strategic Models Results (June 2023), adjustments have been applied to the trip generation process to better match trip rates anticipated by stakeholders (drawing on the TRICS database[2]), in particular National Highways. These adjustments are not mode specific and so outturn mode shares from SCTRTM1 are in line with the calibrated base year model. Post-model adjustments have therefore been made to better match TRICS evidence for PT and active trip generation.

3.3.2 It should be noted that SCRTM1 does not constrain public transport flows to available public transport capacity. Therefore, the outputs can be used to assess where additional PT supply may be beneficial.

3.3.3 Due to limitations in observed data, the validation of the public transport and active travel demand forecasts are meaningful at the strategic level, but less reliable at the local level (e.g. by bus stop). The assessment of public transport and active travel interventions necessary to support the Local Plan detailed within this report considers wider policy aims and good practice in addition to modelling outputs.

3.3.4 Capacity constraints are unlikely to be an issue for active modes. Areas where significant increases in active travel are forecast are presented graphically within this report, in order to identify areas where it is considered necessary to review and improve the quality of active travel provision.

[1] http:/connectingsheffield.commonplace.is

[2] A comprehensive database of traffic and multi-modal transport surveys in the UK and Ireland, covering a wide range of development types. http://www.trics.org

4. PUBLIC TRANSPORT AND ACTIVE TRAVEL IMPACTS

4.1 Impact Measurement

4.1.1 This chapter presents an assessment of additional travel by public transport and active modes (walking and cycling) resulting from the Local Plan developments in the 2029 and 2039 scenarios. For public transport changes in passenger flow on each section of the bus, tram and rail network are presented along with the capacity of each section (expressed in bus, tram or train per hour).

4.2 Local Planning Population and Employment Distribution

4.2.1 The Local Plan allocation sites are expected to have a significant impact on the distribution of population and jobs across Sheffield, given the spatial distribution of the sites, which vary widely in scale from small residential sites with several dwellings to large mixed use sites incorporating both housing and employment space.

4.2.2 The following Figures show the modelled changes in population and jobs (comparing the reference and Local Plan scenarios) in 2029 and 2039 across Sheffield.

4.2.3 From Figure 2 and Figure 3 below, it can be seen that the largest increases in population are expected in the city centre and the area immediately surrounding the city centre, with notable increases also observed in the Deepcar/Stocksbridge area, as well as to the east of the city centre.

4.2.4 With regards to jobs, Figure 4 and Figure 5 below show that the greatest increase in jobs is again expected to materialise in the city centre, although there are also significant increases in jobs expected to the north east (concentrated around Meadowhall and Tinsley) and to the south east, around Crystal Peaks and Halfway.

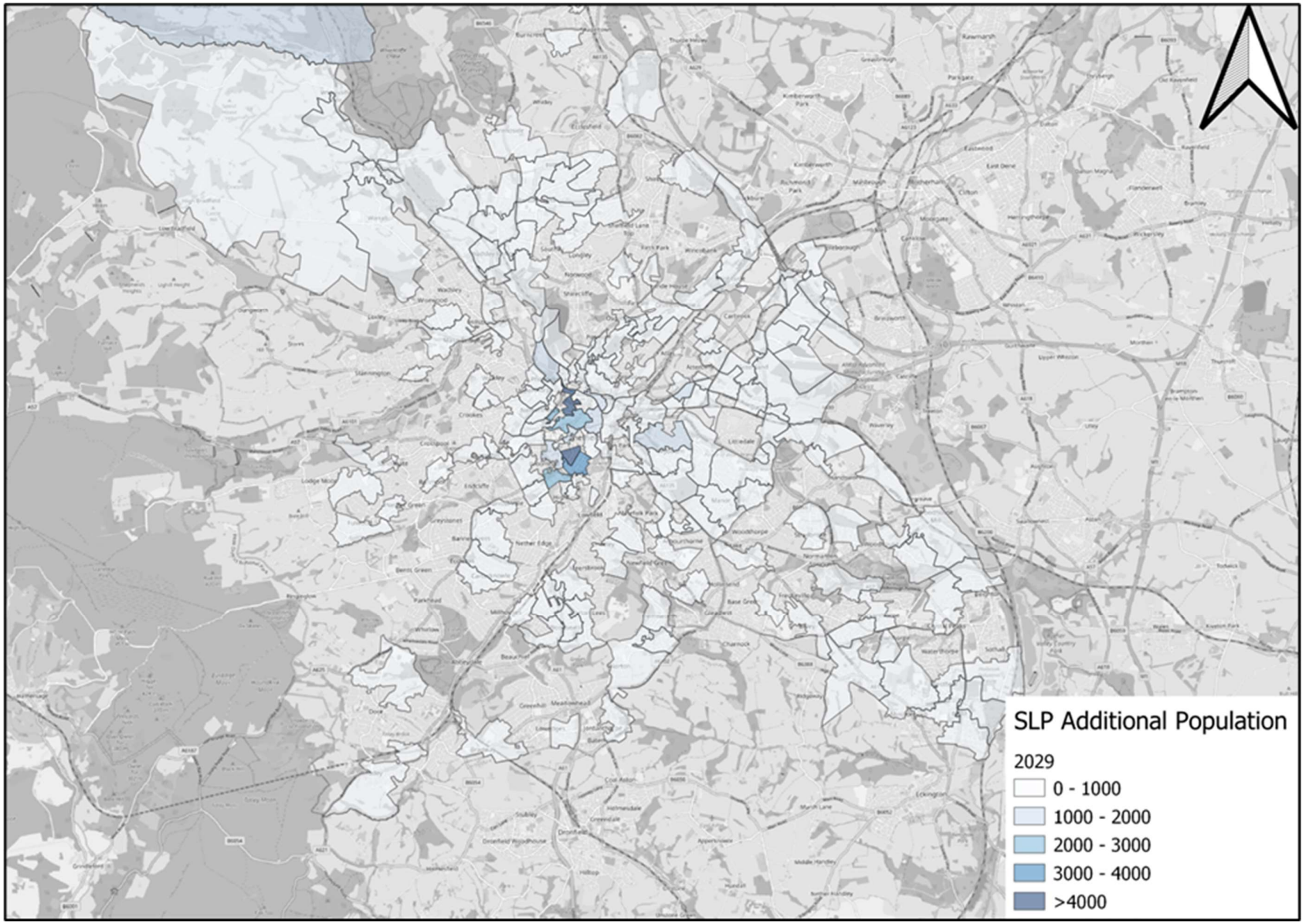

Figure 2. Expected increase in population due to Local Plan allocations – 2029

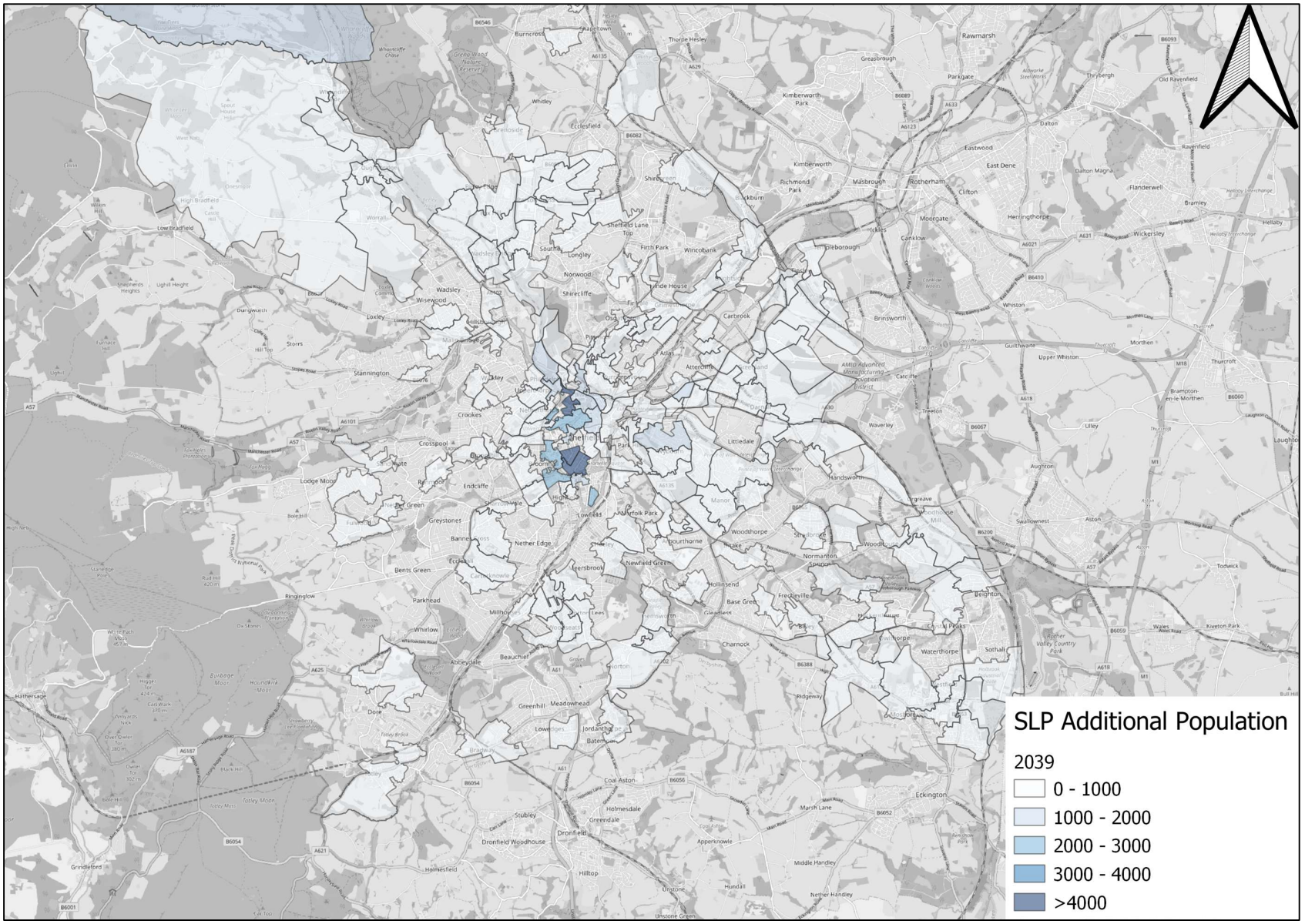

Figure 3. Expected increase in population due to Local Plan allocations – 2039

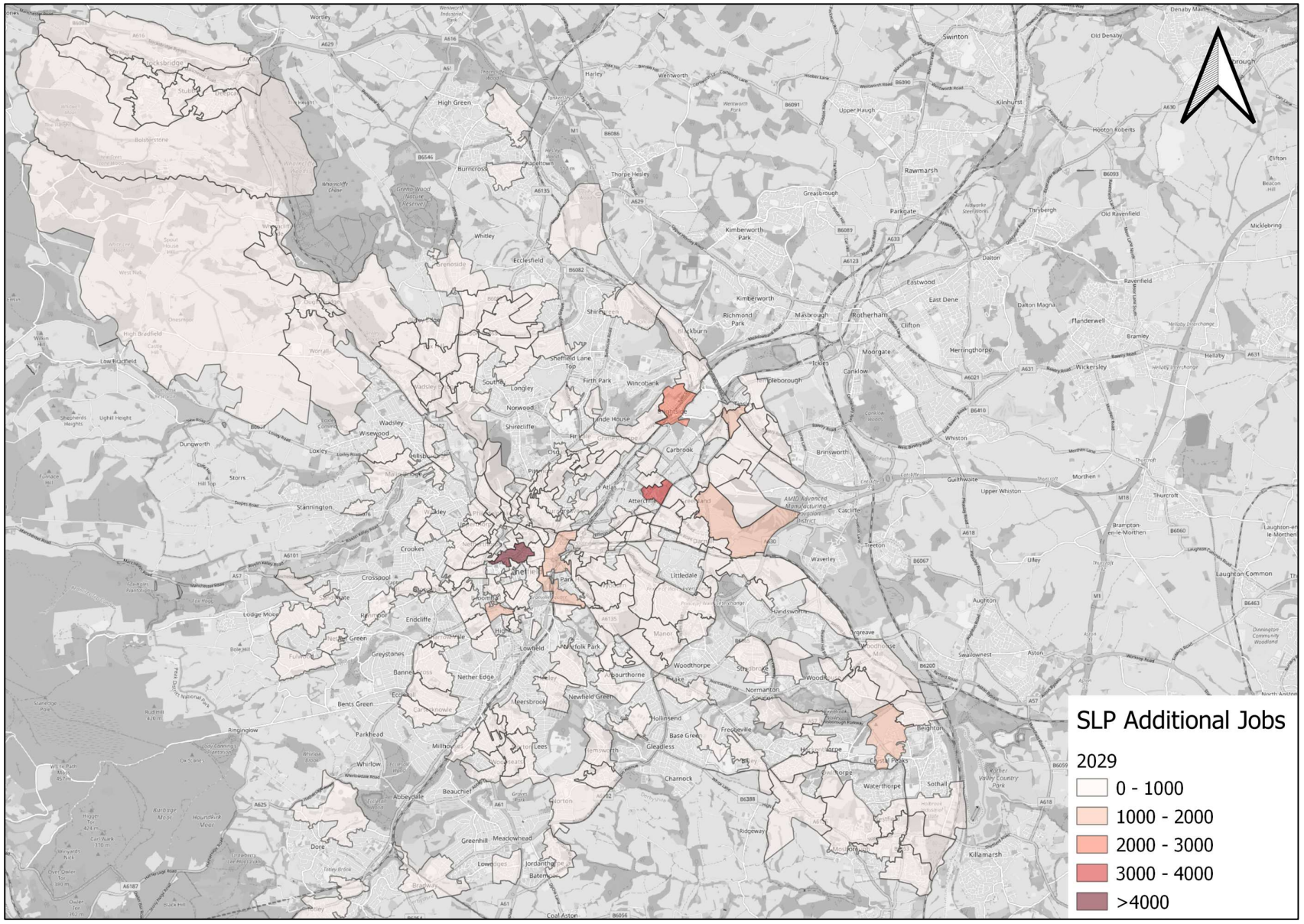

Figure 4. Expected increase in jobs due to Local Plan allocations – 2029

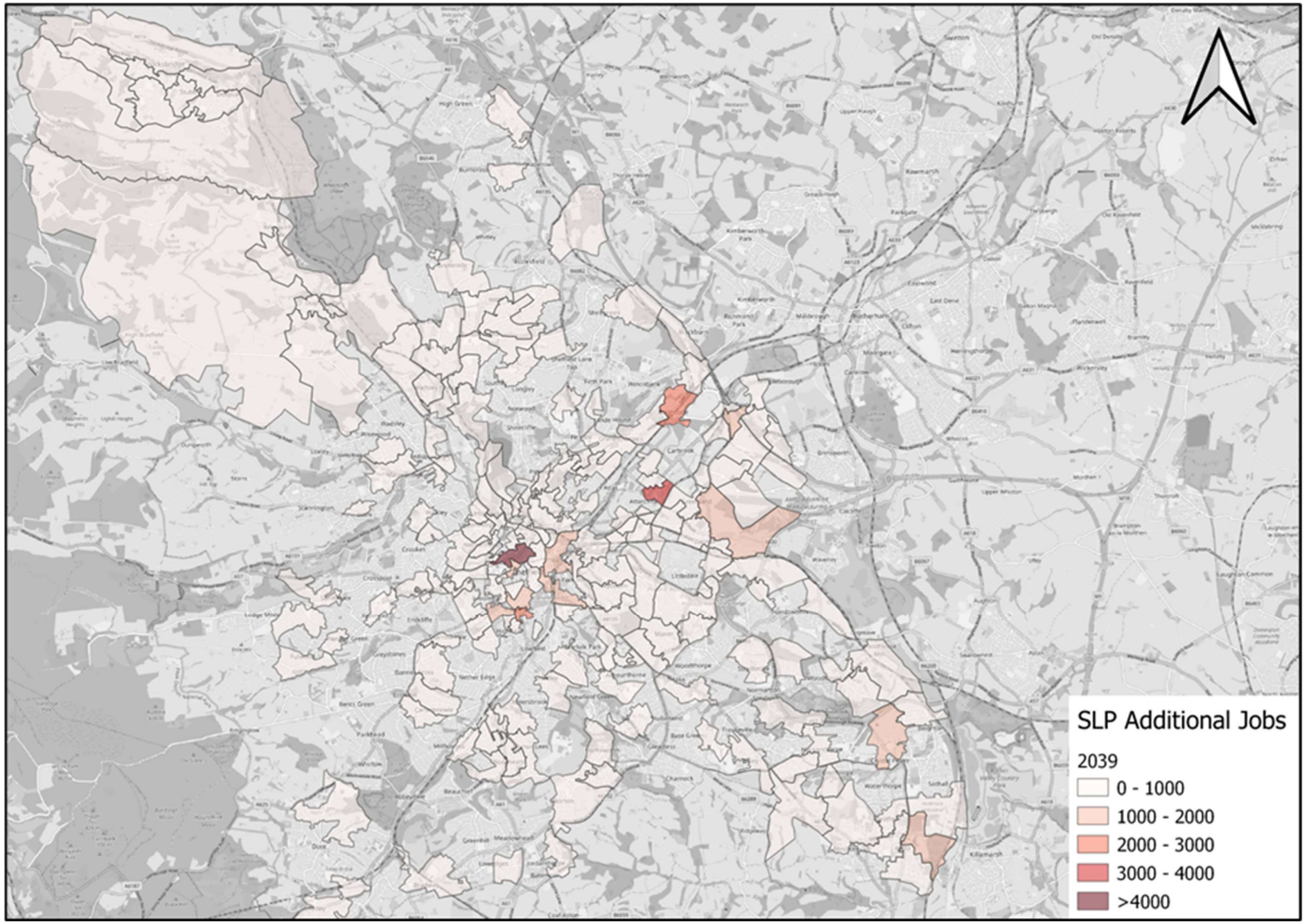

Figure 5. Expected increase in jobs due to Local Plan allocations – 2039

4.3 Public Transport Impacts

4.3.1 The development of Local Plan sites is forecast to increase daily public transport demand by around 31,000 one-way trips in 2029 and nearly 40,000 one-way trips in 2039.

4.3.2 Figure 6 to Figure 13 below show the modelled changes in public transport passenger flows (comparing the reference and Local Plan scenarios) in 2029 and 2039 across Sheffield.

4.3.3 There is a clear focus of additional PT demand in the city centre, which is already well served by public transport. Outside of the city centre there is limited additional PT demand in the vicinity of rail stations.

4.3.4 There are several Supertram stops with the potential to attract significant additional ridership. The total increase in public transport demand (not just tram) is shown in Table 2 below.

Table 2. 2039 Forecast PT Demand Increases near Supertram Stops (trips per hour)

NEAREST SUPERTRAM STOP	ORIGIN AM	DESTINATION AM	ORIGIN PM	DESTINATION PM
West Street	380	460	450	360
Shalesmoor	330	120	190	290
Castle Square	150	60	220	200
Granville Road/The Sheffield College	150	120	80	140
City Hall	150	60	120	140
Middlewood	140	110	90	100
Sheffield Station/Sheffield Hallam University	80	180	110	60
Cathedral	20	150	180	60
University of Sheffield	130	40	40	90

(Stops with an increase of fewer than 100 trips per hour not shown)

4.3.5 The largest increase in 2039 is around 450 one-way trips per hour at West Street, which is approximately the capacity of 2 tram vehicles. These results have been shared with SYMCA to consider opportunities for enhancing Supertram services and / or investing in stop facilities.

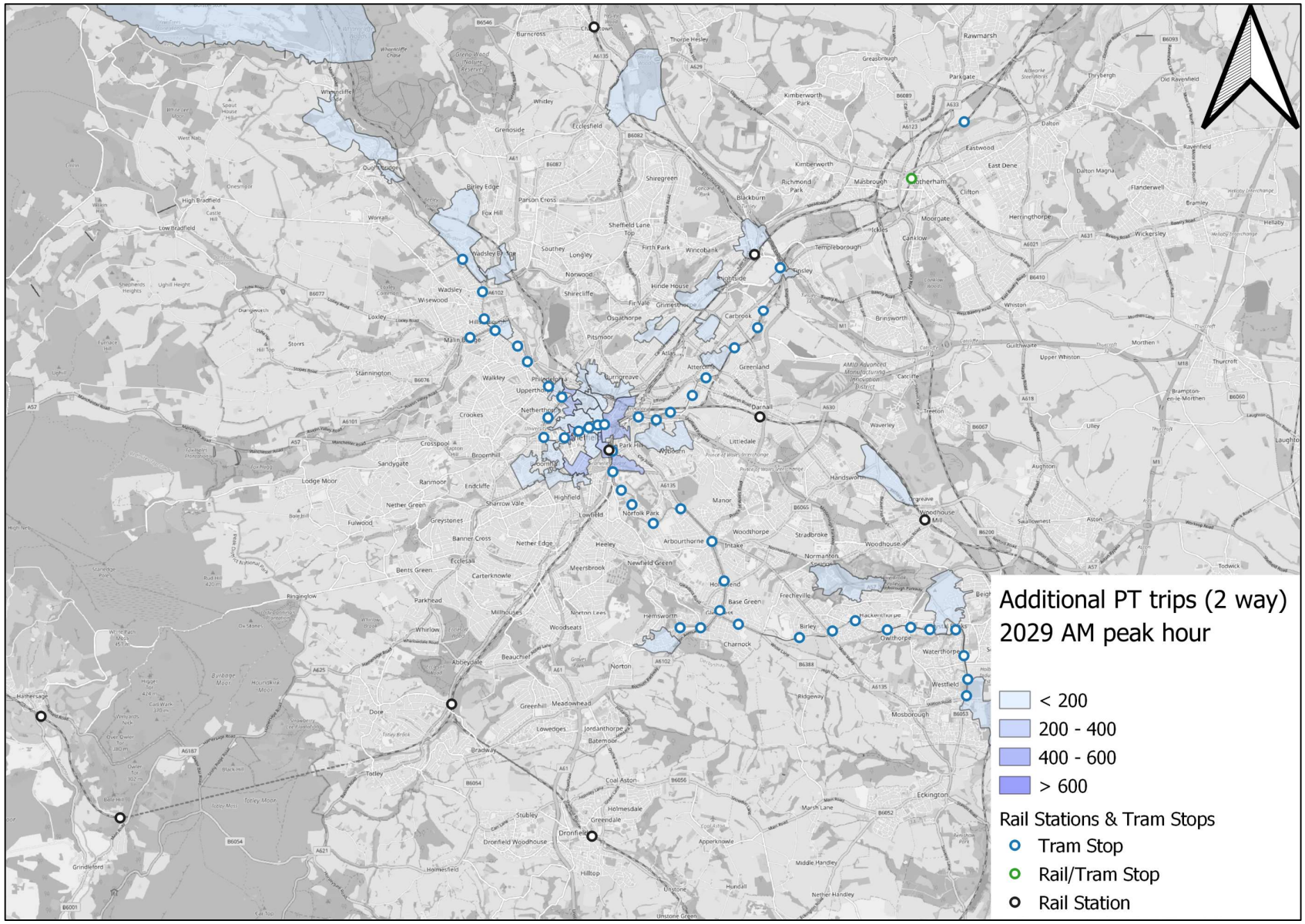

Figure 6. Forecast Public Transport Demand – 2029 AM Peak (wider Sheffield area)

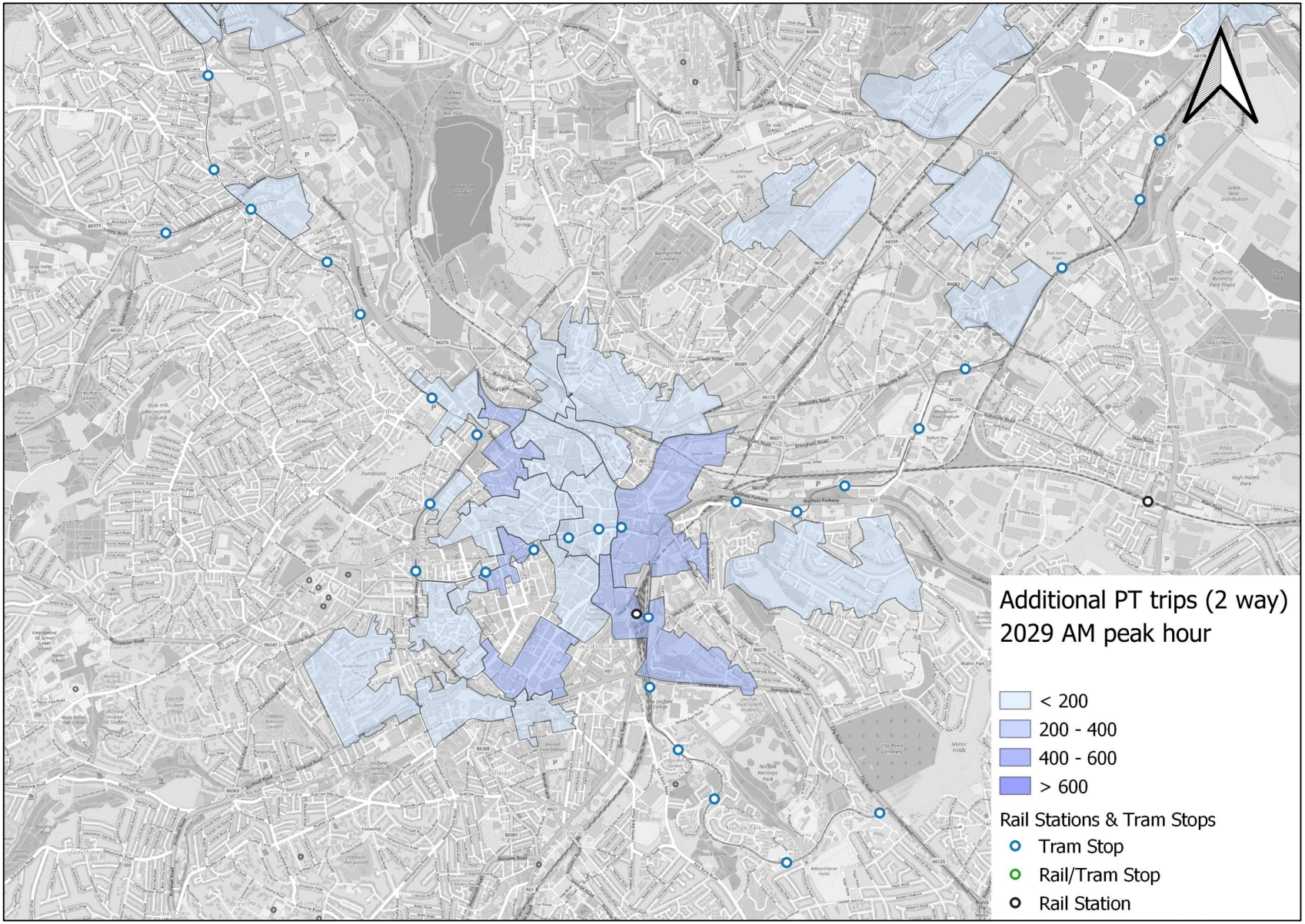

Figure 7. Forecast Public Transport Demand – 2029 AM Peak (central Sheffield area)

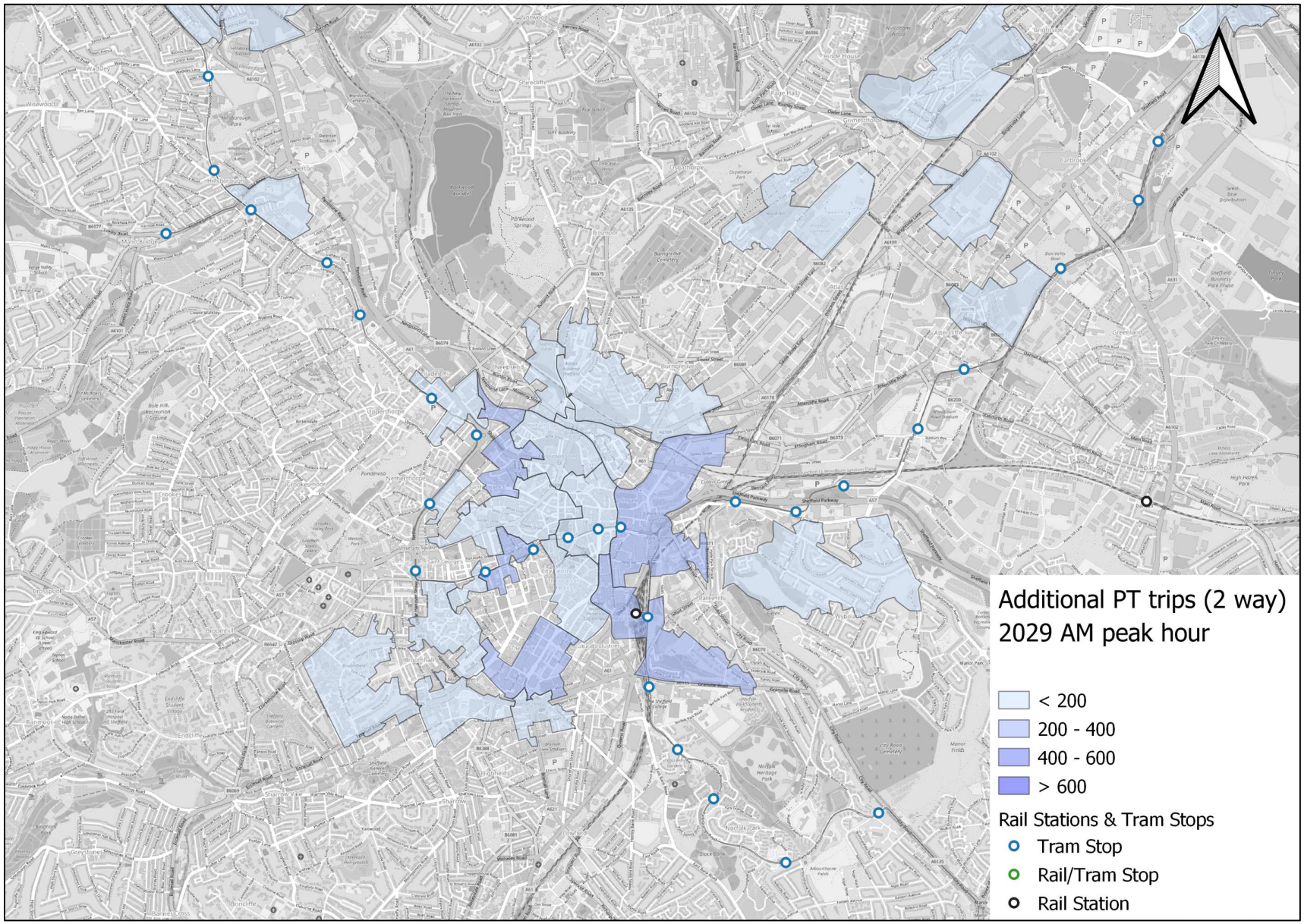

Figure 8. Forecast Public Transport Demand – 2029 PM Peak (wider Sheffield area)

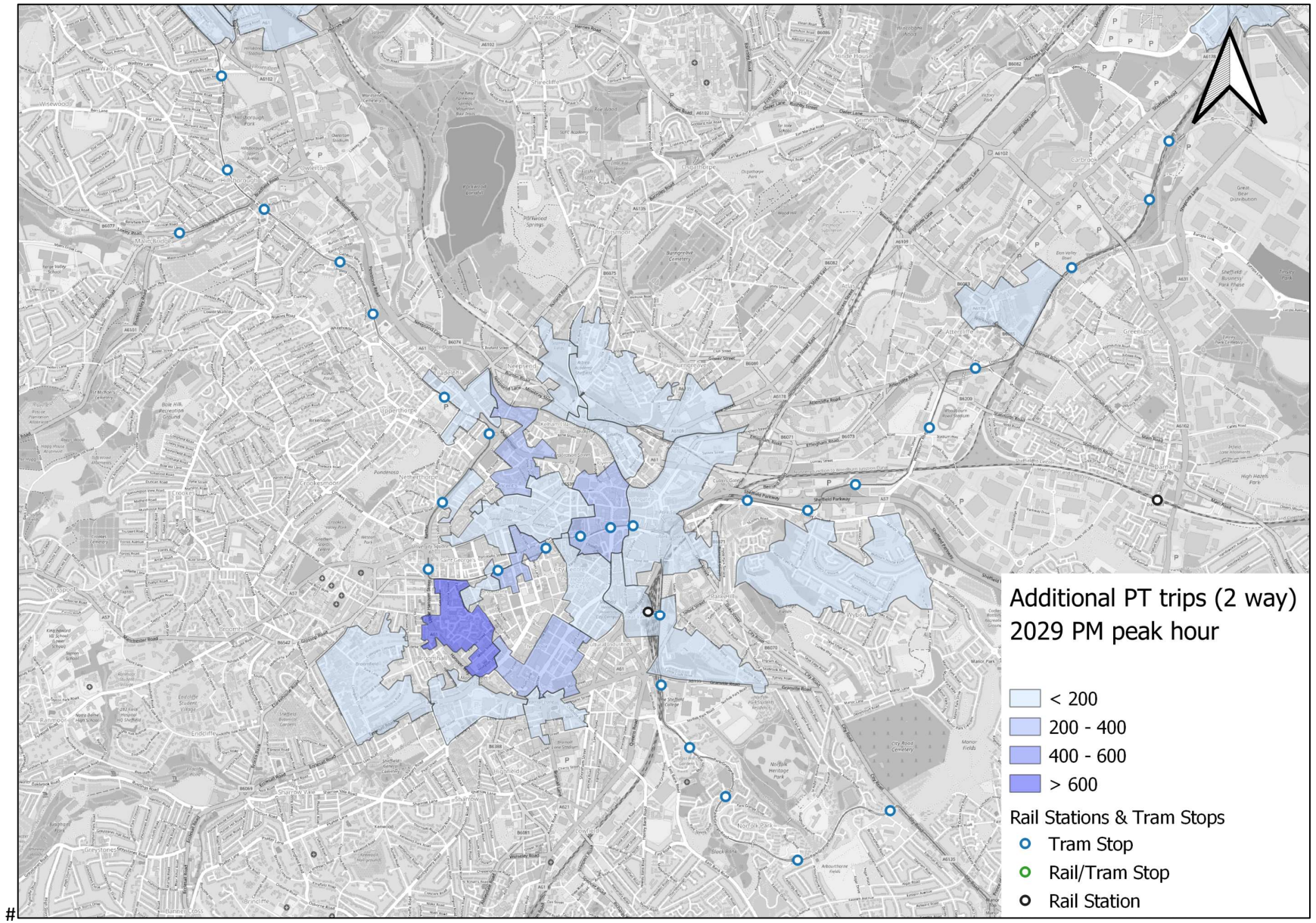

Figure 9. Forecast Public Transport Demand – 2029 PM Peak (central Sheffield area)

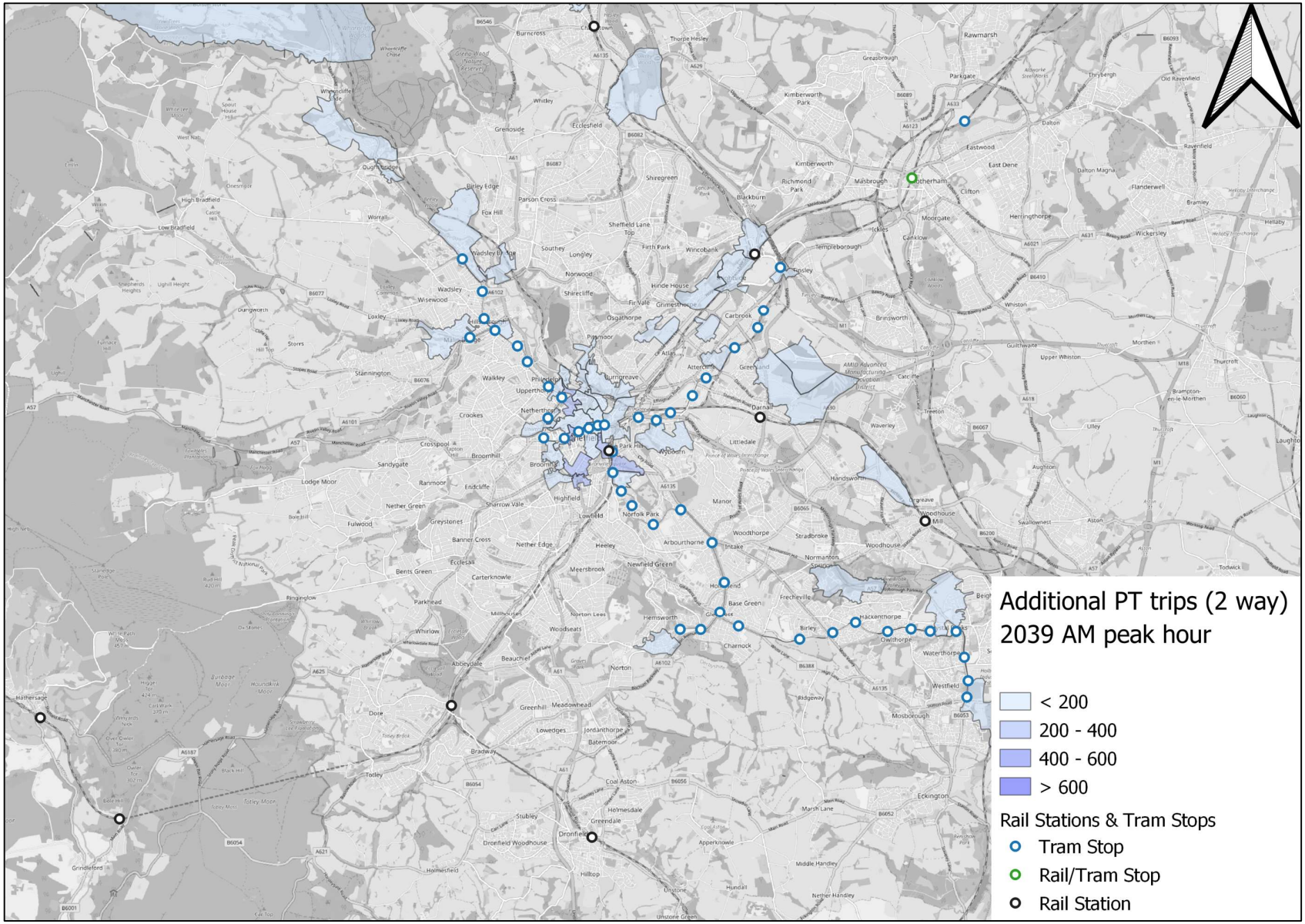

Figure 10. Forecast Public Transport Demand – 2039 AM Peak (wider Sheffield area)

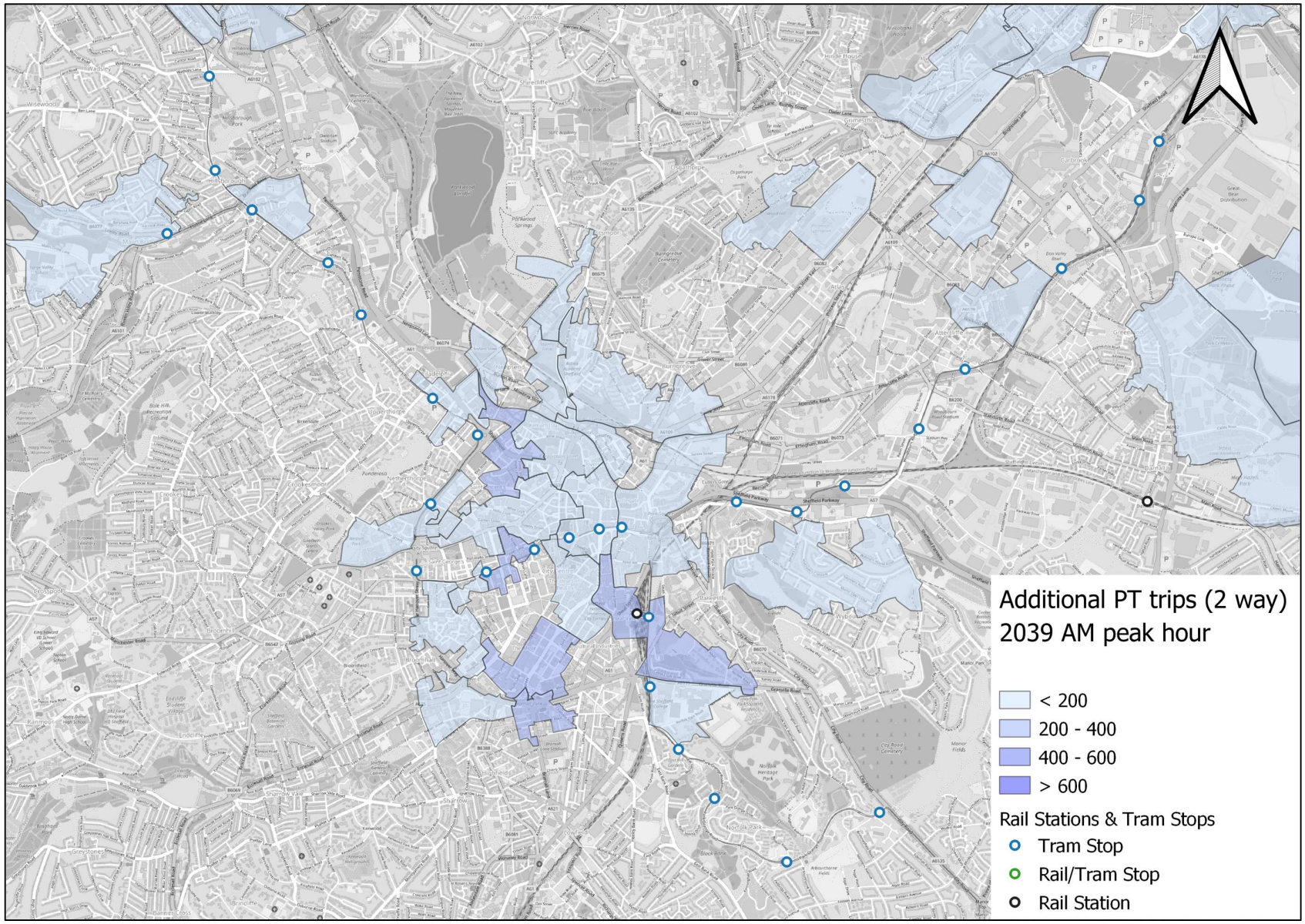

Figure 11. Forecast Public Transport Demand – 2039 AM Peak (central Sheffield area)

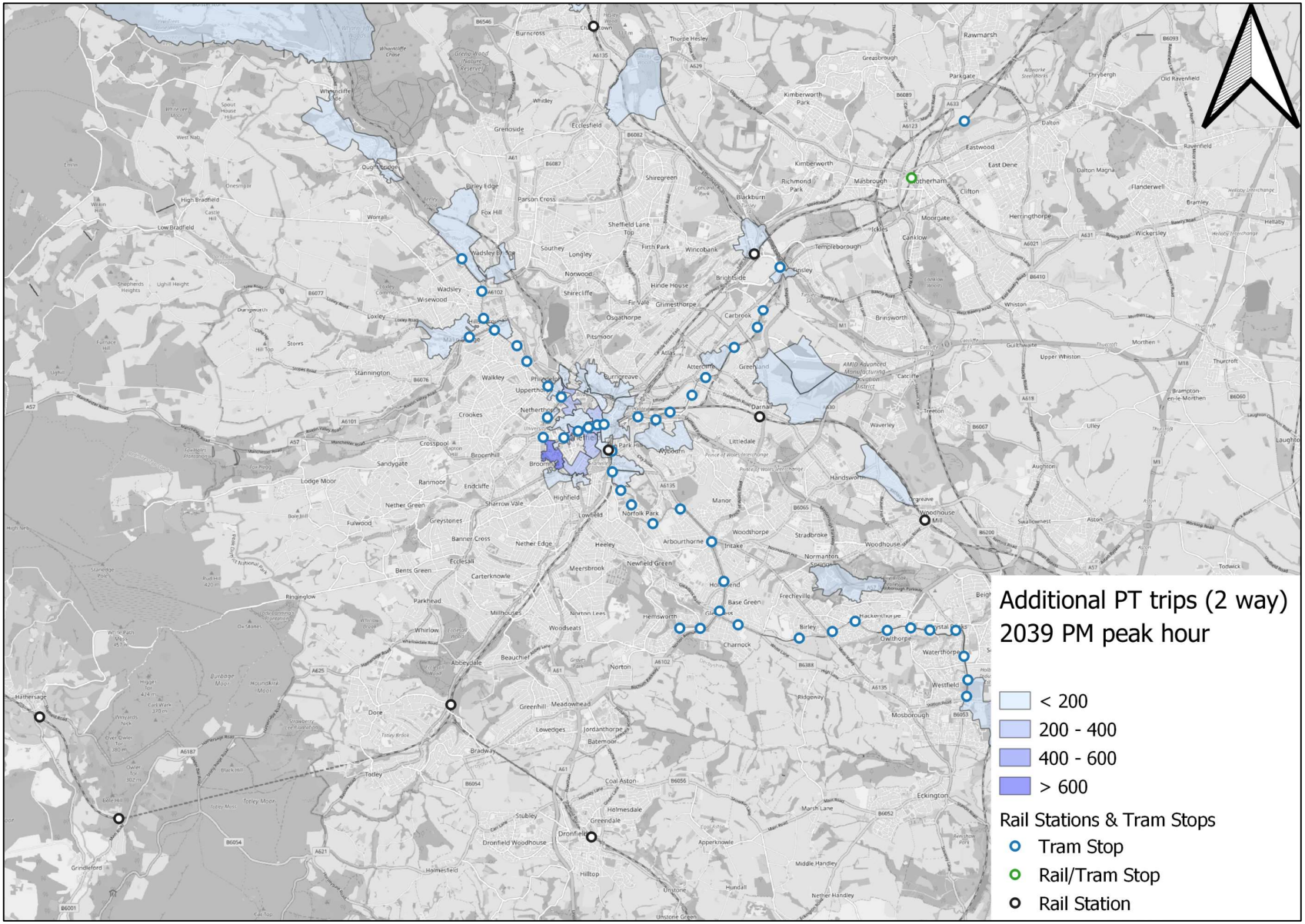

Figure 12. Forecast Public Transport Demand – 2039 PM Peak (wider Sheffield area)

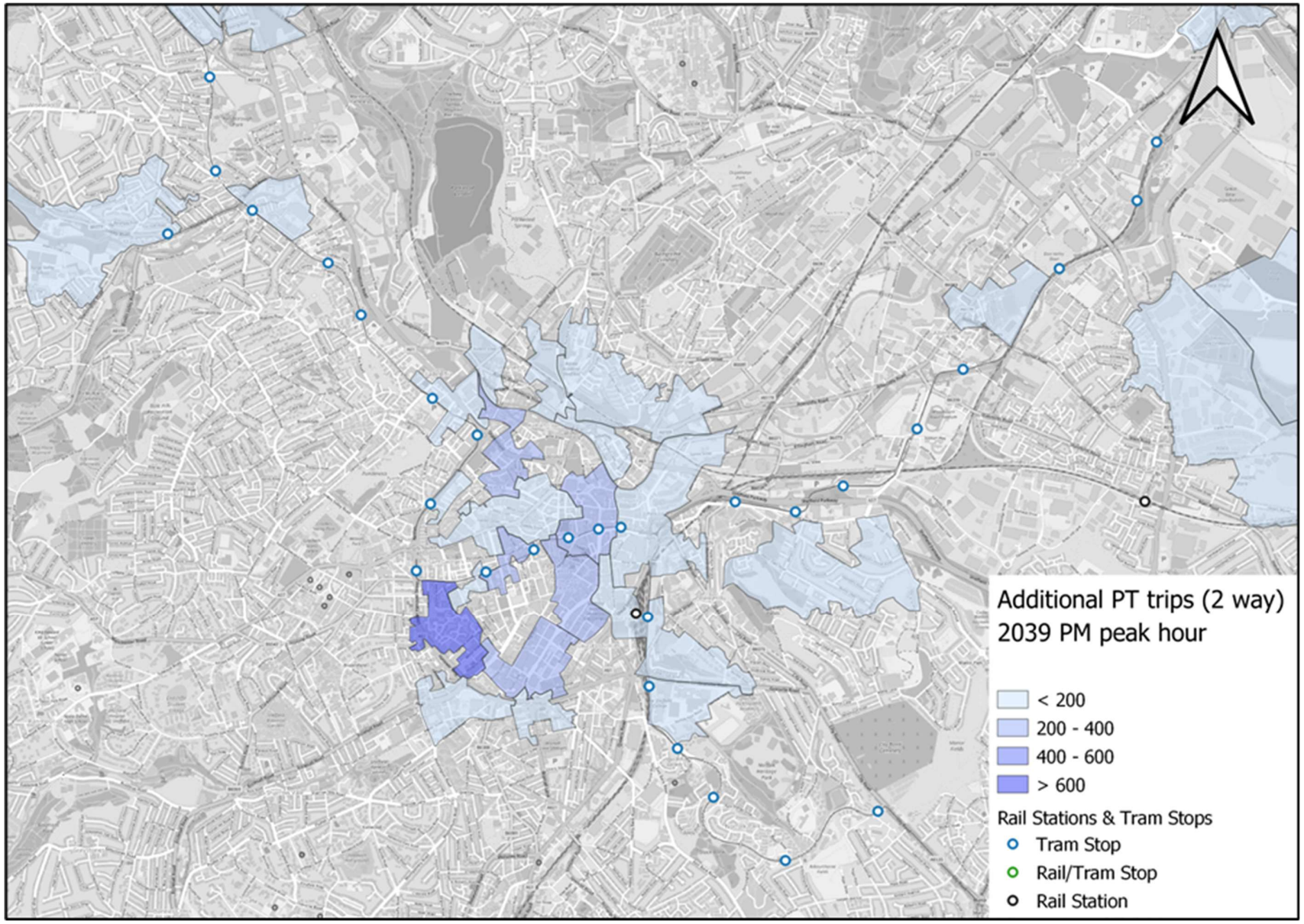

Figure 13. Forecast Public Transport Demand – 2039 PM Peak (central Sheffield area)

4.4 Active Travel Impacts

4.4.1 Figure 14 and Figure 15 below show modelled changes in all day 2-way active travel demand for Local Plan sites (comparing the reference and Local Plan scenarios) in year 2039. Sites generating fewer than 500 trips per day are not shown.

4.4.2 The largest generators of active travel are:

- a leisure development at the location of the former Sheffield Ski Village at Parkwood Springs (north west of the city centre)
- a cluster of residential and mixed use developments inside the St Mary's Gate section of the city centre ring road; and
- office development at Sheffield Olympic Legacy Park in Attercliffe (north east of the city centre)

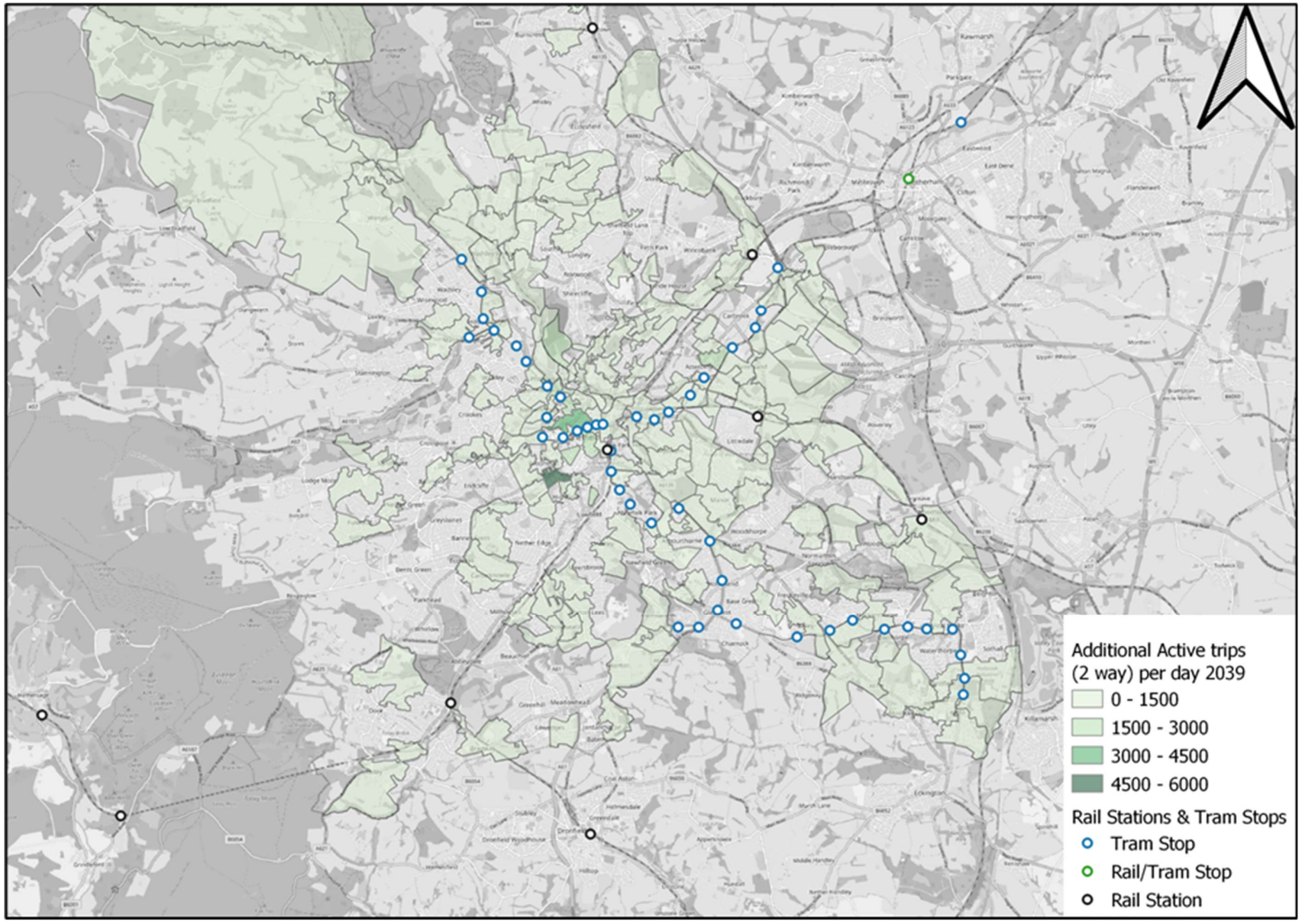

Figure 14. Forecast Daily Active Travel Demand – 2039 (wider Sheffield area)

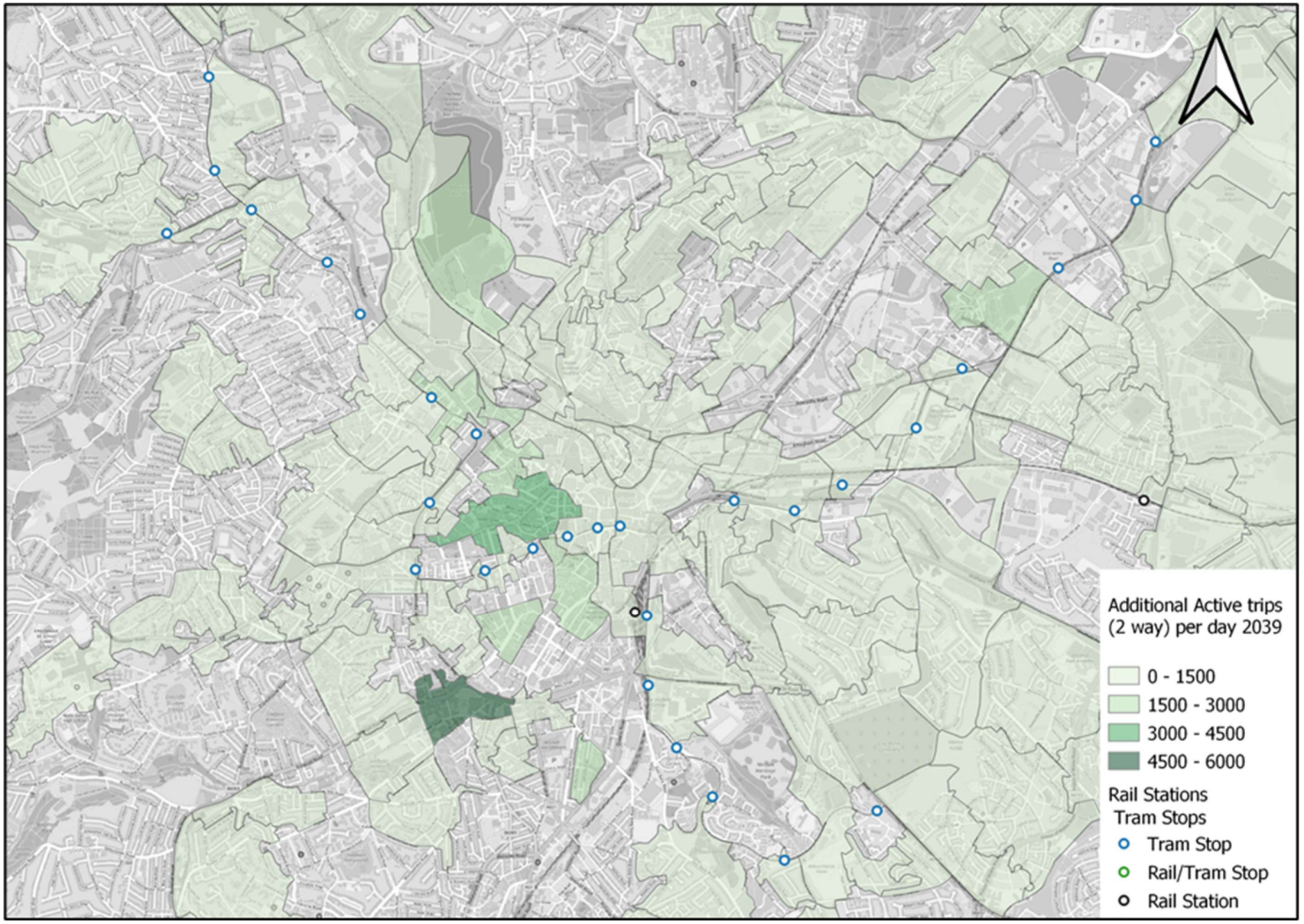

Figure 15. Forecast Daily Active Travel Demand – 2039 (central Sheffield area)

4.5 Key Areas of Demand for Public Transport and Active Travel

4.5.1 As described in Section 4.3 there is a clear focus of additional PT demand in the city centre including at Supertram stops.

4.5.2 Although active travel demand as indicated by the modelling results is more widely dispersed, there is a cluster of greater active travel demand observed for the city centre within the modelling results. Therefore, whilst it would be appropriate to review active travel routes and improvements for all sites, a particular focus on the city centre would contribute towards the continued development of a city centre active travel network and public spaces linking Local Plan sites and key destinations.

5. COMMITTED AND PLANNED TRANSPORT INVESTMENTS

5.1 Overview

5.1.1 This Section summarises the public transport and active travel schemes which are planned or being developed by SCC and other relevant organisations such as SYMCA.

5.1.2 The ability of these measures to either fully or partially address the impacts identified in the previous chapter in conjunction with site-specific mitigation measures is detailed in the following Section.

5.2 Sheffield Transport Strategy

5.2.1 Sheffield City Council's 2019-2035 transport strategy[3] aims to create improved, sustainable and safe transport networks, for Sheffield:

- public transport which is integrated, faster and user friendly;
- better, safer active travel options; and
- protecting the fast, reliable movement of traffic between the city and other economic centres.

5.2.2 The strategy recognises the need for major investment to unlock the city's development without further overloading the highway network or suffering adverse environmental consequences. It aims to shift a significant number of trips toward public transport and active travel. In this way the strategy supports the Clean Air Strategy and Green City Strategy, and can help to provide safe and attractive places.

5.2.3 SCC's approaches to delivering the strategic objectives are:

- supporting better regional road and rail connectivity and improving local networks;
- improving the walking, cycling and public transport offer;
- speeding up journeys for space efficient modes, especially for shorter trips;
- complementing and enhancing the urban and rural fabric of the city;
- simplifying public transport;

[3] https://www.sheffield.gov.uk/travel-transport/transport-strategy-plans

- supporting the development of transport technologies that work towards fully integrated and inclusive transport; and
- adopt technology solutions that remove or reduce the need to travel.

5.2.4 The strategy includes the measures summarised in Table 3.

Table 3. 2019 Transport Strategy Measures

National & regional connectivity **Railways & motorways**	**City region connectivity** **Trams, trains and major road network**
• lobby for additional and faster rail services, in particular to Leeds and Manchester • support High Speed 2 and deliver station and growth masterplans • provide new Sheffield –Rotherham Road link to avoid M1 • support and provide highway improvements to Trans-Pennine Tunnel	• secure Supertram as part of an expanded city public transport partnership • develop new high speed mass transit corridors with park & ride • highway improvements on Inner Ring Road, and between Upper and Lower Don Valley
Local connectivity **Buses and bikes**	**Cross-cutting** **Across the city**
• programme to improve public realm and permeability and accessibility of city centre • review of arrangements for buses in the city centre, including reviewing the future of Pond Street Interchange • additional bus priority • review of bus operating model • improved cycling infrastructure prioritised in city centre and areas with greatest potential to reduce car trips	• implement findings of Clean Air Zone feasibility strategy • develop and enact roadmap to decarbonisation of motorised transport • review relevant Council processes to align with strategy • investigate a Workplace Parking Levy • investigate other demand management measures, including a city centre congestion charge • produce and maintain register of threats and opportunities provided by change

5.3 Public Transport Schemes

5.3.1 Table 4 below describes committed and planned public transport schemes in Sheffield, including their status and potential funding sources. Key improvements related to bus priority corridors, rail line re-openings and upgrades, and the status of the Supertram network are discussed in further detail below.

Table 4. Committed and Planned Public Transport Schemes

SCHEME	DESCRIPTION	DEIVERY TIMEFRAME	FUNDING SOURCE
Midland Mainline electrification	Electrification of the Midland Mainline from Leicestershire / Nottinghamshire to Sheffield Midland Station	TBC	Network Rail / DfT – Integrated Rail Plan
Re-opening of the Barrow Hill Line with new stations at Beighton and Killamarsh	New railway line & new stations	2024 – 2034	Restoring Your Railways / DfT
Proposed new railway station at Waverley	New rail station	2029 – 2034	Restoring Your Railways / DfT
Re-opening of the Don Valley Line with around five new stations along the route	New railway line & new stations	2029 – 2034	Restoring Your Railways / DfT
Hope Valley Line - capacity upgrade	Rail line upgrade	2024 – 2029	Network Rail / DfT
Dore & Totley Station upgrade	Rail station enhancement	2024 – 2029	Network Rail / DfT
Tram-Train Stop at Magna, including Park and Ride	New tram-train station and P&R	2024 – 2029	TCF / SYMCA
Establishing a new bus franchise	Bus service improvements	2024 – 2029	SYMCA / CRSTS

SCHEME	DESCRIPTION	DEIVERY TIMEFRAME	FUNDING SOURCE
operation across South Yorkshire			
Improvements to bus network and facilities as outlined in the BSIP	Bus service improvements	2024 – 2029	SYMCA / CRSTS
Zero emission buses	Procurement of 4 electric buses and charging infrastructure at Sheffield Interchange	2024 – 2029	SYMCA / CRSTS
Meadowhall Interchange Mobility Hub	Provision of mobility hub at key destination – increased P&R provision with supporting amenities	2024 – 2029	SYMCA / CRSTS
City Centre transport improvements	Integrated transport scheme to transform Sheffield City Centre into a greener, more accessible and attractive place	2024 – 2029	TCF/Connecting Sheffield/SYMCA
Nether Edge transport improvements	Enhanced transport connectivity between Sharrow, Nether Edge and Broomhall linking into the city centre while at the same time improving journeys in the local area	2024 – 2029	TCF/Connecting Sheffield/SYMCA

SCHEME	DESCRIPTION	DEIVERY TIMEFRAME	FUNDING SOURCE
Lower Don Valley transport improvements	Provision of cycling, walking and public transport infrastructure to support key growth locations across the Lower Don Valley	2024 – 2029	TCF/Connecting Sheffield/SYMCA
Northern General Hospital access	Provision of active travel and accessibility improvements connecting Sheffield City Centre via the Northern General Hospital, and onward to the surrounding communities	2024 – 2029	SYMCA / CRSTS
Abbeydale Road & Ecclesall Road bus priority corridor	Delivery of a range of public transport, pedestrian access, highways and signal interventions along the corridor.	2024 – 2029	TCF/Connecting Sheffield/SYMCA
A61 South - Chesterfield Rd bus priority corridor	Delivery of a range of public transport, pedestrian access, highways and signal interventions along the corridor.	2024 – 2029	SYMCA / CRSTS
A61 North - Penistone Rd bus priority corridor	Delivery of a range of public transport, pedestrian access, highways and signal interventions along the corridor.	2024 – 2029	SYMCA / CRSTS

SCHEME	DESCRIPTION	DEIVERY TIMEFRAME	FUNDING SOURCE
Sheffield - High Green (Barnsley Rd - NGH) bus priority corridor	Delivery of a range of public transport, pedestrian access, highways and signal interventions along the corridor.	2024 – 2029	SYMCA / CRSTS
Manchester Road Place-making	Improved highway and streetscape, new public spaces, town gateways, and visitor car park	2024 – 2029	Town Deal Funding
Buses for Stocksbridge	Enhanced bus connections to and within Stocksbridge	2024 – 2029	Town Deal Funding

Bus Priority Corridors

5.3.2 Several Mass Transit Corridors are proposed by SCC, largely radiating outwards from the city centre. Figure 16 below shows the planned bus priority corridors, alongside the Local Plan site allocations and the existing tram and rail networks.

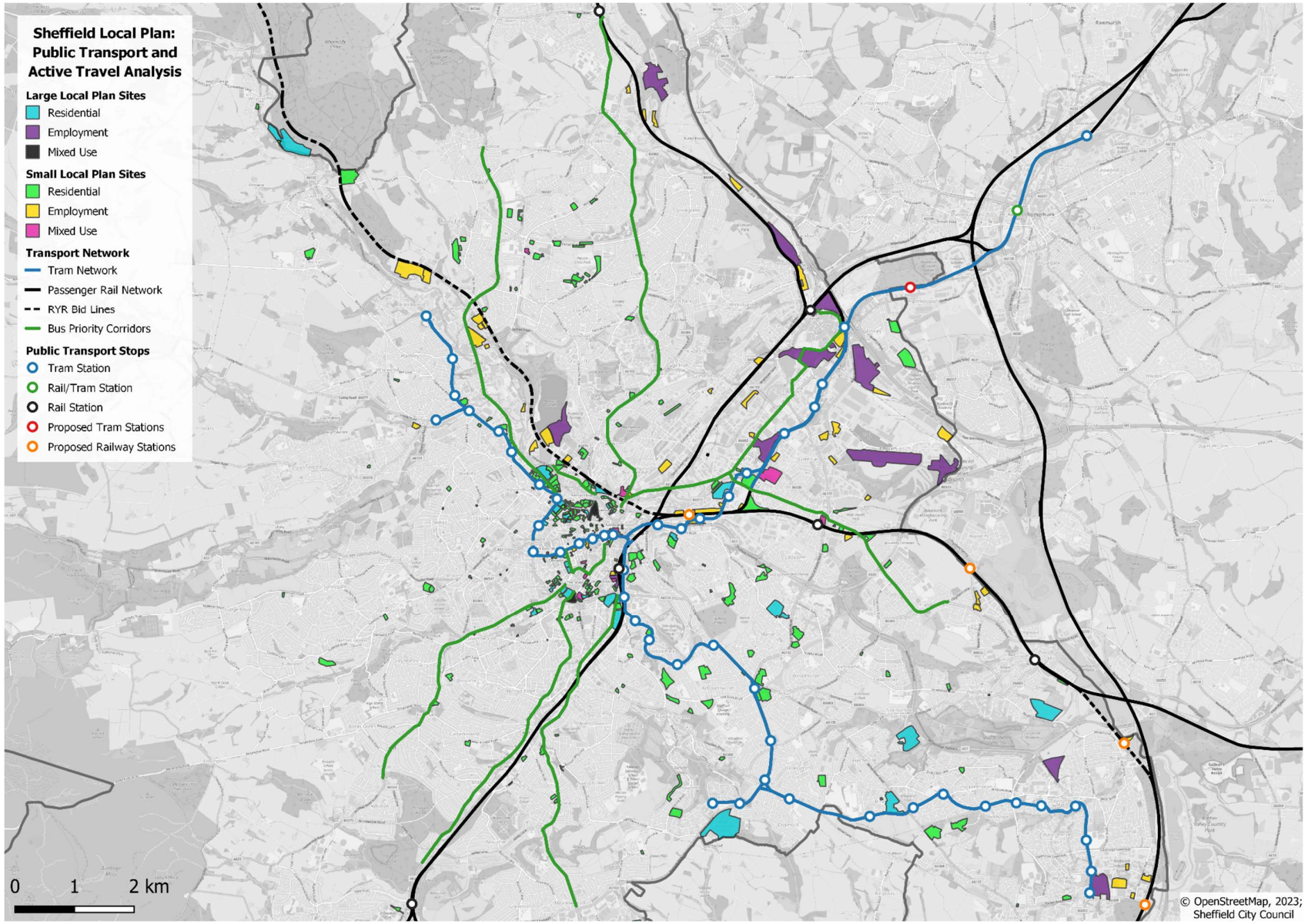

Figure 16. Planned bus priority corridors across Sheffield

5.3.3 Many Local Plan sites outside the city centre are located in reasonable proximity to bus priority corridors, as well as existing tram and rail networks.

5.3.4 SYSTRA's proposed public transport and active travel mitigation measures therefore focus on linking Local Plan sites to public transport networks via active modes, in order to promote public transport use and create a cohesive multi-modal transport network across Sheffield.

Restoring Your Railways Bids

5.3.5 Two Restoring Your Railways (RYR) bids are currently proposed for rail lines within the Sheffield City Council area, the most advanced of which is the RYR bid for the Barrow Hill line running eastwards from Sheffield Station.

5.3.6 A Strategic Outline Business Case was submitted in 2021 for the Barrow Hill RYR bid, which set out indicative an indicative scope and cost for the bid, following the line being shortlisted for funding from the Restoring Your Railways fund in 2020. The business case set out proposals for a number of indicative station locations along the line within the Sheffield area, including at Nunnery Square, Darnall (existing), Waverley (part of a separate RYR bid), Woodhouse (existing), Beighton and Killamarsh. The indicative station locations have been considered within SYSTRA's analysis of Local Plan mitigation measures.

5.3.7 In October 2021, a bid to reopen the Don Valley line between Sheffield and Stocksbridge using funding from RYR was also shortlisted, with a business case for the project currently in development. However, given that the Don Valley bid is not as advanced as that for the Barrow Hill line, indicative station locations on the Don Valley Line have not been considered within SYSTRA's analysis of Local Plan mitigation measures at this stage.

Supertram Network

5.3.8 The Supertram network is currently being reviewed as part of the ongoing Mass Transit Renewals business case, ahead of SYMCA regaining control of the Supertram

network in 2024. For the purposes of SYSTRA's modelling work and mitigation analysis, it has been assumed that the Supertram service will continue, with a frequency of 7.5 trams per hour and a per tram capacity of around 250 passengers.

5.3.9 The modelling work and mitigation analysis has also assumed the presence of a new park and ride sites at Magna, which is confirmed for delivery using funding from the Transforming Cities Fund (TCF), with scheme completion expected in Spring 2024.

5.4 Active Travel Schemes

5.4.1 Table 5 below describes committed and planned active travel schemes in Sheffield, including their potential funding sources.

5.4.2 Given that active travel improvements can vary widely in scale and can utilise a variety of funding sources, the status of the active travel schemes has not been included within Table 5.

5.4.3 Nonetheless, for the purposes of SYSTRA's Local Plan mitigation analysis, it has been assumed that SCC will aspire to deliver all of the below schemes, and that S106 and/or Community Infrastructure Levy funding from Local Plan developments can be used to deliver the below schemes or measures that would be complementary to them.

Table 5. Committed and Planned Active Travel Schemes

SCHEME	DESCRIPTION	DELIVERY TIMEFRAME	FUNDING SOURCE
Abbey Lane pedestrian improvements	Provision of new crossings and accessibility measures for pedestrians	2024 – 2029	Mayoral Combined Authority Crossing Fund, Road Safety Fund, Community Infrastructure Levy
Connecting Darnall	Interventions to support active and sustainable travel, including connections to key employment areas	2024 - 2029	ATF2 / SYMCA (from LaNTP (Network Management)

SCHEME	DESCRIPTION	DELIVERY TIMEFRAME	FUNDING SOURCE
Oughtibridge cycle route	Provision of cycle route to Oughtibridge	2024 – 2029	S106 / Other
City Centre to Heeley via East Bank Road	Walking and cycling route enhancement	2024 – 2029	Connecting Sheffield / ATF3
City Centre Cycle Hub	Provision of cycle storage/management facility in city centre	2024 – 2029	ATF2 / LTP
Sheaf Valley Cycle Route	New cycling and walking route connecting Sheaf Valley to the city centre	2024 – 2029	Connecting Sheffield / ATF2 / SYMCA
Kelham - Neepsend - City Centre	Provision of high-quality cycling and walking infrastructure to connect Kelham and Neepsend to the City Centre	2024 – 2029	TCF / Connecting Sheffield / SYMCA
Magna - Tinsley	Cycling and pedestrianised improvements, linking to improvements in Rotherham	2024 – 2029	TCF / Connecting Sheffield / SYMCA
Nether Edge - City Centre	Integrated transport improvements including highways, public transport, walking and cycling.		TCF / Connecting Sheffield / SYMCA
Darnall - Attercliffe - City Centre	Integrated public transport, active travel, public realm, and accessibility scheme		TCF / Connecting Sheffield / SYMCA

SCHEME	DESCRIPTION	DELIVERY TIMEFRAME	FUNDING SOURCE
Northern Communities (active links to NGH)	Integrated public transport, active travel, public realm, and accessibility scheme		Connecting Sheffield / ATF3 / SYMCA
Residential cycle parking	Provision of residential cycle parking at strategic locations	2024 - 2029	Local and Neighbourhood Transport Complimentary Programme (LaNTP) / Community Infrastructure Levy
Cycle Hub @ Olympic Legacy Park	Provision of a new cycle hub to encourage active travel and improve links to and from Attercliffe High Street	2024 – 2029	Levelling up Fund and developer contributions
Stocksbridge cycling improvements	Improved cycle connections to reservoirs and surrounding countryside; new Underbank off-road loop	2024 – 2029	Town Deal Funding
City Centre transport improvements	Integrated transport scheme to transform Sheffield City Centre into a greener, more accessible and attractive place	2024 – 2029	TCF/Connecting Sheffield/SYMCA
Nether Edge transport improvements	Enhanced transport connectivity between Sharrow, Nether Edge and Broomhall linking into the city	2024 – 2029	TCF/Connecting Sheffield/SYMCA

SCHEME	DESCRIPTION	DELIVERY TIMEFRAME	FUNDING SOURCE
	centre while at the same time improving journeys in the local area		
Lower Don Valley transport improvements	Provision of cycling, walking and public transport infrastructure to support key growth locations across the Lower Don Valley	2024 – 2029	TCF/Connecting Sheffield/SYMCA
Northern General Hospital access	Provision of active travel and accessibility improvements connecting Sheffield City Centre via the Northern General Hospital, and onward to the surrounding communities	2024 – 2029	SYMCA / CRSTS
Abbeydale Road & Ecclesall Road bus priority corridor	Delivery of a range of public transport, pedestrian access, highways and signal interventions along the corridor.	2024 – 2029	TCF/Connecting Sheffield/SYMCA
A61 South - Chesterfield Rd bus priority corridor	Delivery of a range of public transport, pedestrian access, highways and signal interventions along the corridor.	2024 – 2029	SYMCA / CRSTS
A61 North - Penistone Rd bus priority corridor	Delivery of a range of public transport, pedestrian access, highways and signal	2024 – 2029	SYMCA / CRSTS

SCHEME	DESCRIPTION	DELIVERY TIMEFRAME	FUNDING SOURCE
	interventions along the corridor.		
Sheffield - High Green (Barnsley Rd - NGH) bus priority corridor	Delivery of a range of public transport, pedestrian access, highways and signal interventions along the corridor.	2024 – 2029	SYMCA / CRSTS
Manchester Road Place-making	Improved highway and streetscape, new public spaces, town gateways, and visitor car park	2024 – 2029	Town Deal Funding

5.5 Site-specific Planning Conditions

5.5.1 A number of Local Plan sites already have planning permission in place, with conditions attached to the planning consents in a number of cases. Planning conditions which are relevant to the accessibility of Local Plan sites by public transport and active modes have therefore been factored into the analysis of necessary mitigation measures.

5.5.2 In the majority of cases, the planning conditions already account for the provision of mitigating works, or set out a requirement of site delivery that would provide a complementary scheme to a separate mitigation measure proposed within this report.

5.5.3 The relevant planning conditions are summarised in Appendix A.

6. PUBLIC TRANSPORT AND ACTIVE TRAVEL MITIGATION MEASURES

6.1 Approach to Mitigation

6.1.1 SYSTRA's approach to the analysis of necessary mitigation measures related to the delivery of Local Plan sites has been focused around the impacts of the Local Plan on public transport and active travel demand flows (as evidenced by modelling undertaken using SCRTM1), as well as 'best-practice' transport planning principles.

6.1.2 The modelling work undertaken using SCRTM1 and the impacts presented within Section 4 of this report have shown the likely quantum of demand, assuming:

- existing levels of provision for public transport and active travel; and
- mode shares consistent with similar existing developments across the country (as per TRICS).

6.1.3 SYSTRA has investigated the public transport and active travel interventions needed to promote and maximise the share of public transport and active travel for Local Plan sites. We have taken both the current network and planned improvements into account, and proposed measures to fill in any gaps.

6.1.4 Improvements to existing bus and tram stops make up many of the proposed PT mitigation measures. Such improvements are relatively low cost and could be funded through Section 106 contributions. Other proposed PT measures include:

- new or upgraded bus stops
- re-routing bus services
- improving bus service frequencies; and extending bus route operating hours.

6.1.5 The bus service improvements are not anticipated to require significant investment in depots or maintenance facilities. There are precedents for marginal increases in bus fleet, staffing, and operations and maintenance costs to be funded through Section 106 for a period aligned to the service life of a new bus (typically 10-12 years).

6.1.6 The proposed PT measures could also be supplemented by the provision of mobility hubs in strategic locations, serving key residential areas, employment sites and attractors such as stations, leisure facilities and civic sites (e.g. universities, hospitals).

6.1.7 The provision of a mobility hub at Meadowhall is already listed within the latest version of the IDP, to serve the shopping centre as well as the nearby rail and tram stations. It is envisaged that the mobility hub would include the following facilities:

- extension of existing park & ride facilities;
- installation of electric vehicle charging facilities;
- provision of public transport waiting facilities;
- provision of cycle stands and lockers; and
- provision of personal transport solutions, e.g. electric scooter rental

6.1.8 Similar mobility hubs could be provided in other locations across Sheffield, although other hubs would not have to replicate the specification of the proposed Meadowhall hub, as each hub could be tailored to best suit its location and anticipated usership.

6.1.9 Smaller 'cycle hubs' are already proposed within the IDP for both the city centre and the Olympic Legacy Park, in order to encourage active travel around those locations. In time, these cycle hubs could be expanded to improve mobility by other modes.

6.1.10 Based on the proposed scale, land use and distribution of the Local Plan sites, potential locations for mobility hubs are indicated in Figure 17 below, which would serve:

- key residential and employment Local Plan sites and clusters;
- train and tram stations which are anticipated to expect an uplift in usership as a result of the Local Plan delivery; and
- attractor destinations such as retail parks and leisure facilities.

6.1.11 Although the indicative mobility hub locations are based on Local Plan sites only, additional mobility hubs may be relevant for other key locations (e.g. outlying rail stations) if funding can be secured. Best-practice guidance regarding the design,

delivery and operation of mobility hubs is offered within CoMoUK's Mobility Hubs Toolkit[4].

[4] CoMoUK – Mobility Hubs Toolkit: https://www.como.org.uk/documents/comouk-mobility-hubs-toolkit

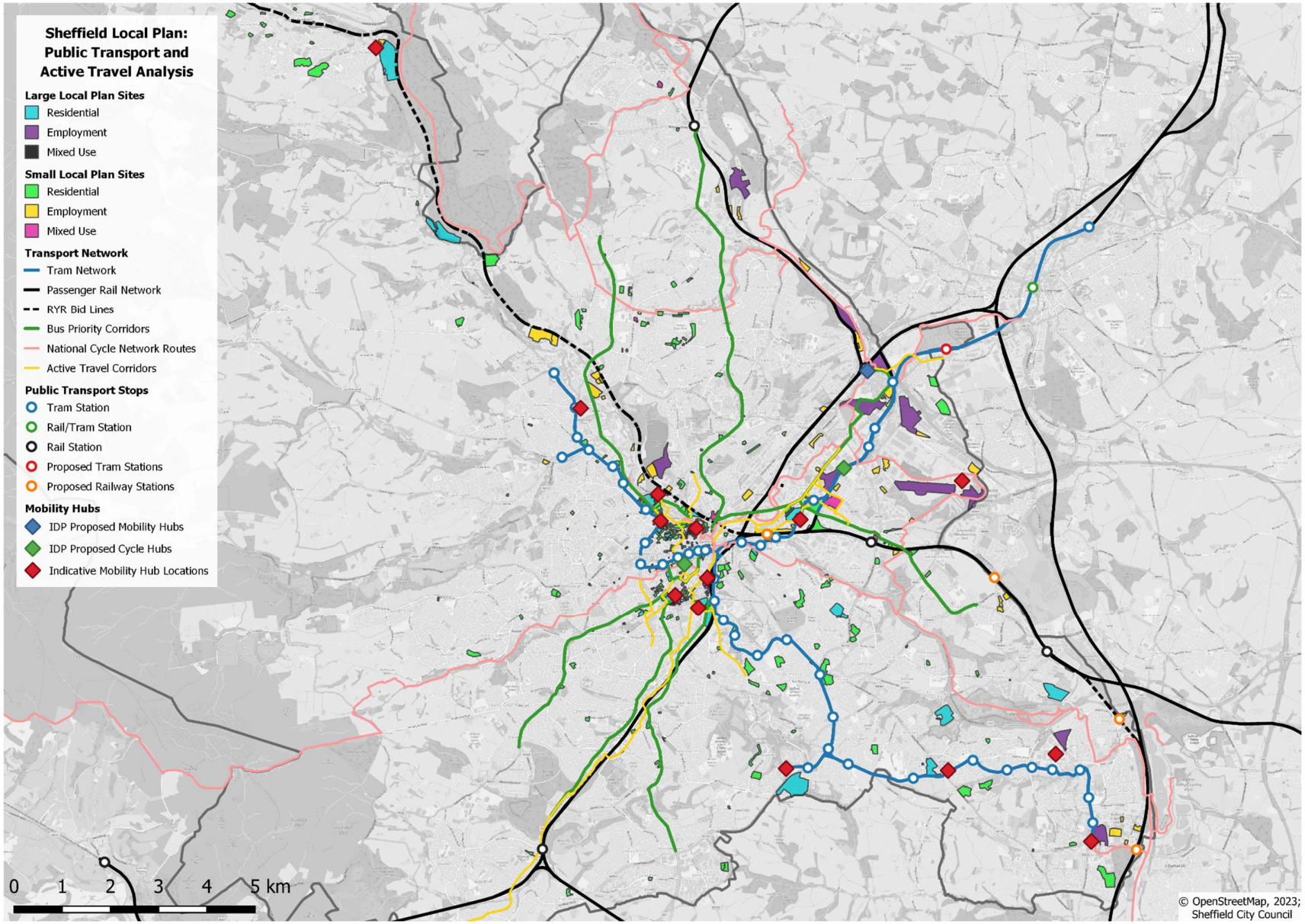

Figure 17. Indicative mobility hub locations across Sheffield

6.2 Development of Mitigation Measures

6.2.1 Based on the above, bespoke mitigation measures have been developed for the vicinity of each site in an effort to encourage access of Local Plan sites by public transport and active travel once developments have been delivered.

6.2.2 These mitigation measures have principally been conceived with the aim of linking Local Plan sites to public transport networks via active modes, in order to ensure the accessibility of public transport networks from Local Plan sites and to better promote public transport use for longer-distance journeys where active travel may be less feasible.

6.2.3 In some cases a mitigation measure may impact on several sites simultaneously i.e. those located along an improved bus route. In such scenarios it is envisaged that this would strengthen the strategic need for a mitigation measure to be delivered, whilst also increasing the amount of Section 106 funding that could be secured in order to fund such improvements.

6.2.4 The proposed mitigation measures have not been costed at this stage. We envisage that this will be completed during a later stage of the Local Plan workstream process. However, given the relatively small scale of the measures proposed, it is envisaged that the majority of measures will be fundable through Section 106 and/or Community Infrastructure Levy contributions.

6.3 SCC Input into Mitigation Analysis

6.3.1 An indicative list of public transport and active travel mitigation measures (along with road-based mitigation measures) was shared with SCC on the 2nd of June 2023.

6.3.2 SCC provided comments in response to this indicative list of interventions on the 23rd of June 2023. These comments have been considered when developing mitigation measures, either through alteration and refinement of the proposed measures or within the narrative accompanying each mitigation measure.

6.4 Extent of Local Plan Sites Considered

6.4.1 In developing mitigation measures, SYSTRA has considered the 45 largest Local Plan sites, as well as notable clusters of smaller sites which are expected to have an impact on public transport and active travel demand flows during peak times.

6.4.2 For the purpose of assessing where significant mitigation measures might be required, 'large' sites were defined as those with:

- over 200 dwellings;
- over 5,000 m^2 of office floorspace; or
- over 20,000 m^2 of other employment floorspace.

6.4.3 Additionally several clusters of smaller sites were also considered. Judgement was applied to define clusters of sites in close proximity to each other which collectively generate levels of public transport and active travel demand which would be comparable with the large sites. As a result of considering clusters and large sites all sites with over 250 expected residents and/or over 200 expected jobs have been analysed.

6.4.4 Sites which have been considered for mitigation are shown in Figure 18, which acts as a key for the individual site maps provided within the Appendices. There may be requirements for mitigations at smaller sites, which are not assessed in this report, which would be assessed by developers as part of the design and planning consent process.

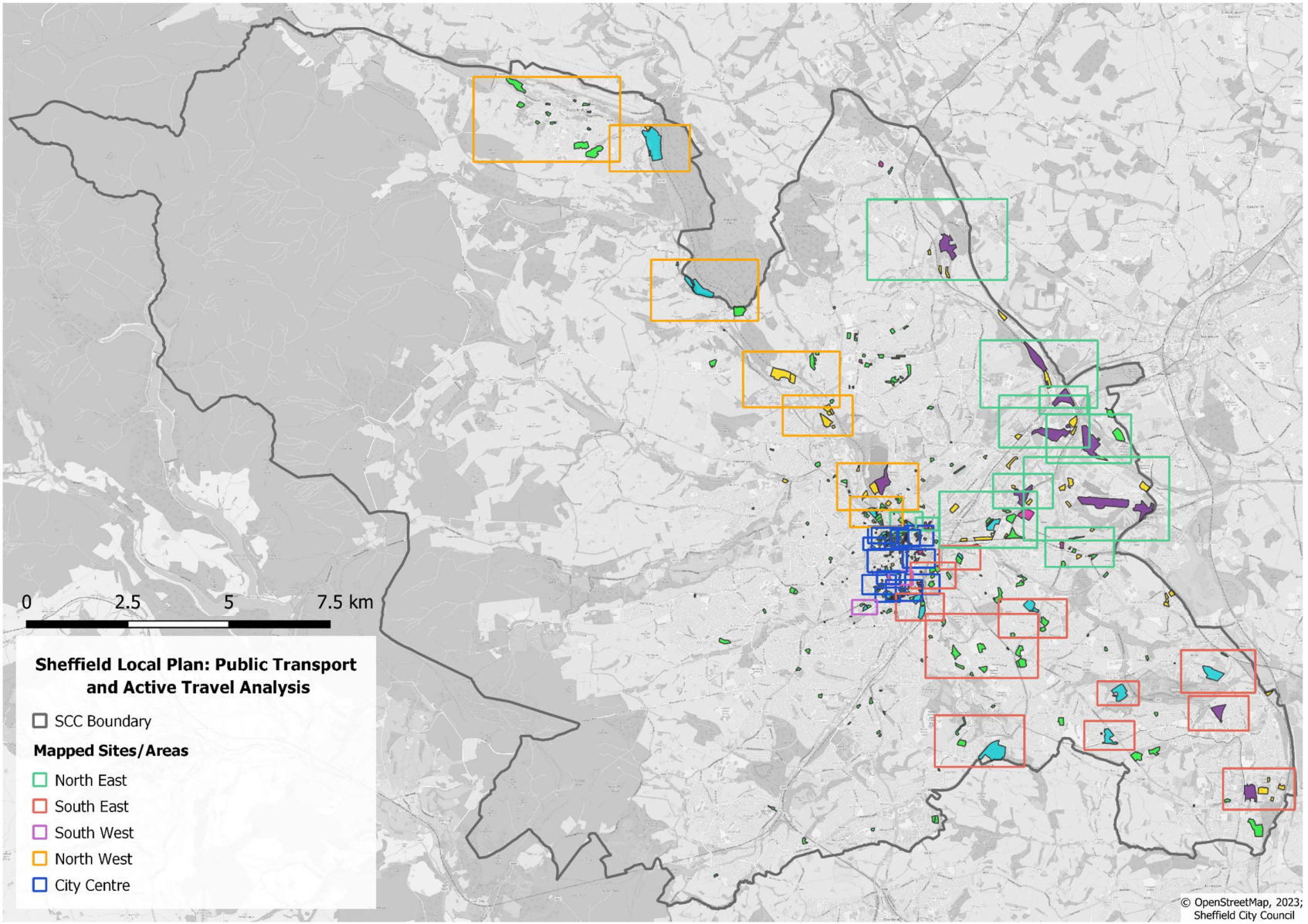

Figure 18. City-wide index map showing extent of Local Plan sites considered

6.5 Incorporation of Planned Public Transport and Active Travel Improvements

6.5.1 The public transport and active travel improvements presented in Section 5, as well as the relevant planning conditions presented there also, have been considered alongside potential mitigation measures relating to Local Plan sites.

6.5.2 These are presented alongside SYSTRA's proposed mitigation measures, in order to show linkages between various schemes and how access to Local Plan sites by either public transport, active travel or a combination of different modes will be encouraged via a cohesive transport network.

6.6 Presentation of Mitigation Measures

6.6.1 Maps have been prepared as visual aids for accompanying narratives investigating the public transport and active travel accessibility of the largest sites/clusters.

6.6.2 Maps relating to the 45 largest sites and other notable clusters are presented within Appendices A to E. The Appendices relate to quadrants of Sheffield (as well as the city centre within the ring road) as follows:

- Appendix B: North East Sheffield
- Appendix C: South East Sheffield
- Appendix D: South West Sheffield
- Appendix E: North West Sheffield
- Appendix F: City Centre

6.7 Summary of Proposed Mitigation Measures

6.7.1 Table 6 below provides a summary of the proposed public transport and active travel mitigation measures, categorised by type.

6.7.2 It should be noted that some measures may span more than one category (e.g. a crossing to improve access to a bus stop would also aid active travel access to those for not using the bus).

Table 6. Summary of proposed interventions by type

INTERVENTION TYPE	INTERVENTIONS PROPOSED
New active travel links (footways and cycleways) following likely pedestrian and cyclist desire lines	54
Improvements to bus stops (e.g. provision of upgraded shelters, Real Time Passenger Information)	47
Assessing the quality of existing active travel links/wayfinding, with improvements where necessary	18
Installation and upgrading of crossings in the vicinity of Local Plan sites to aid active travel and calm traffic	12
Changes to bus services (frequency and/or routeing) to better serve Local Plan sites	11
Improving pedestrian access (e.g. crossings/footway improvements) to bus stops closest to Local Plan sites	9

6.7.3 Overall, the above mitigation measures have been proposed on the basis that public transport and active travel-focused mitigation measures should constitute the core of the Local Plan mitigation strategy, based on aspirations and policy objectives held by SCC regarding shifts in modal share, as well as wider trends in urban transport.

6.7.4 It is hoped that in combination with planned improvements to the Sheffield's existing transport network, the proposed mitigation measures will limit demand for private car travel to and from the Local Plan sites and reduce the need for highway interventions, whilst encouraging uptake of public transport use and travel via active modes for both shorter and longer journeys across the Sheffield area.

7. SUMMARY

7.1 Summary

7.1.1 This report has set out the findings of the modelling approach and the public transport and active travel mitigation measures which SYSTRA considers necessary to ensure that the Local Plan sites will exceed the "status quo" public transport/active travel mode shares which have fed into the modelling approach.

7.1.2 Based on the above, a number of mitigation measures have been proposed relating to the largest Local Plan sites, as well as notable clusters of smaller sites which are expected to have an impact on public transport and active travel demand flows during peak times.

7.1.3 The report is accompanied by a number of Appendices (A to E), which contain maps providing a visual representation of each of the large Local Plan sites, as well as clusters of smaller sites. The maps show SYSTRA's proposed public transport and active travel mitigation measures relative to Sheffield's current and planned transport network.

7.2 Next Steps

7.2.1 It is expected that the public transport and active travel mitigation measures will be further refined as the workstream progresses and further information becomes available.

7.2.2 Costing work will be undertaken to better understand the scale of Section 106 contributions and other funding necessary in order to deliver the proposed mitigation measures. This costing work will also allow for more detailed prioritisation of mitigation delivery, in line with the anticipated delivery of Local Plan site allocations.

7.2.3 Following this consideration, associated discussion and possible amendment, the findings will be incorporated into the Local Plan transport evidence base for submission to the Planning Inspector.

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