



Thurrock Council
Local Plan Transport
Evidence

Baseline Study

Finalised Edition v1



Document Control Sheet

Project Name: Thurrock Council Local Plan Transport Evidence - Baseline Study
Project Ref: 49722
Doc Ref: Finalised Edition v1
Date:

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Foreword



- i. **This Thurrock Council Local Plan Transport Evidence – Baseline Study considers the patterns and characteristics of movement within Thurrock and the origins and destinations of movement and forms of movement with surrounding areas.**
- ii. **The study has been structured to review movement for the Borough as a whole and also drillings down into five Strategic Character areas – which themselves make up the Borough.**
- iii. This an evidence base which supplements the development of the Local Plan for the Borough and recognises the need for movement into the Borough, through the Borough and out from the Borough. It does not deal specifically with the challenges and opportunities associated with those movements. Furthermore, it does not seek to identify measures and initiatives which might form a strategy for embracing or changing movement. That evidence and strategy will be formed through subsequent research and outputs which will be developed to inform the emerging Local Plan for the Borough.
- iv. The local and regional importance of connections within and through Thurrock formed by A13, the C2C rail network and M25 is recognised throughout the review. It does not comment on the current configuration or capacity of those corridors but identifies areas for change, improvement and growth.
- v. The study has been guided by feedback from major stakeholders in the transport environments within Thurrock. The following have engaged in virtual workshops and meetings and have provided feedback on their opinions on the current status of the travel network in the Borough and their current aspirations for changes, challenges, opportunities, enhancement or modifications:
 - DPWorld
 - Essex County Council
 - Highways England
 - Kenex Thames Gateway Tramlink Ltd
 - PLA
 - Port of Tilbury
 - Stephenson of Essex
 - Segro
 - Thames Clippers
 - Transport East
- vi. Consultation opportunities were offered to, but not taken up by:
 - RMSA
 - Croports
 - Ensign Buses
 - Stage Coach
 - TfL
- vii. The proposal for the creation of the Lower Thames Crossing through the Borough is reflected in the study, including the currently proposed linkage between that corridor and A13 and A1089. The study forms no opinion on the suitability or appropriateness of the Lower Thame Crossing project.

1. Introduction



1. Introduction to Baseline Study - background

1. This Baseline Study has been prepared to document the existing transport and travel situation in the borough of Thurrock. This study will form the basis of the transport planning evidence for the emerging Local Plan.

2. The Local Plan will provide the policy base and guidance; help to coordinate strategies; and identify the necessary infrastructure requirements for the delivery of over 30,000 new homes and 26,000 new jobs across the borough. Strategic growth locations are being identified which will be informed by the current inter connectivity and access characteristic of the borough which are explored within this study.

3. Thurrock Council has prepared and consulted on two Issues and Options reports and has carried out a Call for Sites, both to develop the base for the new Local Plan for the borough. These documents and this study will become part of the wider suite of evidence which is to help shape a robust and progressive Local Plan for

Thurrock to 2042.

4. The Local Plan will reflect on the implications of the Lower Thames Crossing proposals on the borough and how that will affect the Land Use planning processes and the provisions for access and movement within and through the borough.

5. The Structure of the Local Plan is made up of a number of phases, which will progress through the following:

- Strategic Polices, Proposals and Infrastructure
- The 5 Strategic Character Areas: Development Frameworks & Infrastructure Delivery Plans
- Strategic Growth Locations: Inset Plans, Master Plans, Transport Access Strategies and Infrastructure Delivery Plans
- Strategic Urban Extensions/New Settlements
- Strategic Employment Allocations
- Town Centres
- Villages – Settlement Strategies and Master Plans

- 'Planning for the Future' – Design Coding

6. The evidence base within this study has used data from a series of sources:

- Census 2011
- Department for Transport
- National Travel Survey (NTS)
- TEMPro 7.2
- Ordnance Survey
- Office of Rail and Road
- Royal Mail postcode
- Police injury accident records
- Thurrock Council

7. Outputs from the data sets are presented at Appendix A to this report and have been used to inform the analysis within the report.

8. Key stakeholders have been engaged in the preparation of the study feeding back on the primary challenges, aspirations and opportunities they face. Those stakeholders have supplemented the data. The stakeholders which have been contacted are:

- C2C Trains
- Network Rail

- DPWorld
- Essex County Council
- Highways England
- Kenex Thames Gateway Tramlink Ltd
- PLA
- Port of Tilbury
- Stephenson of Essex
- Segro
- Thames Clippers
- Transport East

9. Consultation opportunities were offered to, but not taken up:

- RMSA
- Croports
- Ensign Buses
- Stage Coach
- TfL

1. Introduction to Baseline Study - structure

10. The study has been structured around the guidance within the Planning Policy Guidance (PPG) "Transport Evidence Bases in Plan Making and Decision Taking". PPG tells us that transport evidence bases in plan making and decision taking should establish evidence that may be useful in:

- 'improving the sustainability of transport provision
- enhancing accessibility
- creating choice amongst different modes of transport
- improving health and well-being
- supporting economic vitality
- improving public understanding of the transport implications of development
- enabling other highway and transport authorities/service providers to support and deliver the transport infrastructure that conforms to the Local Plan
- supporting local shops and the high street'

11. PPG also advises on the key issues that should be considered in developing a transport evidence base, which are to:

- 'assess the existing situation

and likely generation of trips over time by all modes and the impact on the locality in economic, social and environmental terms

- *assess the opportunities to support a pattern of development that, where reasonable to do so, facilitates the use of sustainable modes of transport*
- *highlight and promote opportunities to reduce the need for travel where appropriate*
- *identify opportunities to prioritise the use of alternative modes in both existing and new development locations if appropriate*
- *consider the cumulative impacts of existing and proposed development on transport networks*
- *assess the quality and capacity of transport infrastructure and its ability to meet forecast demands*
- *identify the short, medium and long-term transport proposals across all modes.'*

12. To form an understanding of the baseline, in accordance with PPG this study addresses 'all current transport issues as they

affect all modes and freight covering, for example, accessibility, congestion, mobility, safety, pollution, affordability, carbon reduction across the whole Plan area and, within relevant areas of the Plan, including existing settlements and proposed land allocations.'

13. Input from all relevant transport and planning authorities, transport providers and key stakeholders is encouraged through the PPG. As such this report has been produced with consultation and opportunity for input from those parties.

14. This study is structured around:

- Accessibility**
- Congestion**
- Mobility**
- Safety**
- Pollution, carbon reduction and health**
- Affordability**
- Focus on specific areas of Thurrock**

15. **Accessibility** is the extent to which individuals and households can access day to day services, such as employment, education, healthcare, food stores and

town centres.

16. **Congestion** is the degree to which travel demand is greater than the capacity of the network to accommodate within a given time period.

17. **Mobility** is the ability of people and goods to move efficiently and freely around an area, is a crucial factor in economic growth and wellbeing for the population. It primarily concerns opportunity to travel and the network connections available.

18. **Safety** considers the injuries and casualties that occur as a result of interactions between users of the transport network.

19. **Pollution**, carbon reduction and health examines the trends and impacts of the transport network in terms of the pollution impact, the trends in carbon production and how this interacts with public health.

20. **Affordability** looks at the demographic factors which shape travel behaviour through changing the needs and costs of travel.

1. Introduction to Baseline Study - structure

21. These topics are covered in the body of this report, with detailed data provided in appendices.
22. The Study breaks down the borough into five spatial areas which have been defined to structure development of the Local Plan:
 - **Aveley and Ockenden**
 - **Thurrock Urban area**
 - **The Fens**
 - **Stanford Le Hope, Corringham, London Gateway/TEP**
 - **Chadwell St Mary, Tilbury, East Tilbury and Linford**
23. Having examined the current data for travel and transport in the Plan area, this study concludes on the key aspects of that data review and identifies opportunities for further data consideration and gaps in data or knowledge that should be filled to further inform the Local Plan making process.

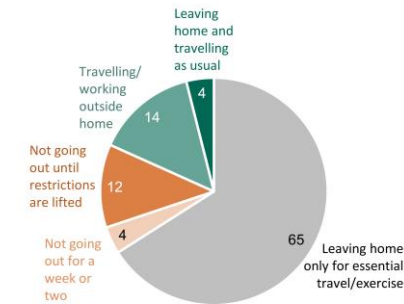
1. Introduction to Baseline Study – COVID-19 influence on travel patterns

24. This study considers data from 2019 or before, as the behaviour of travellers during 2020/21 will not be typical of continuing trends and is not considered to provide a sound basis for forecasting or planning.

25. Discussion with the train operator C2C indicated that passenger numbers compared to 2019 are significantly suppressed, with travel only rising to around 46% of February 2019 patronage during the non-lockdown periods in 2020.

26. Chart 1 extracted from National Travel Attitudes Study (NTAS): Wave 4 (Provisional) shows the suppression of travel reported during the pandemic:

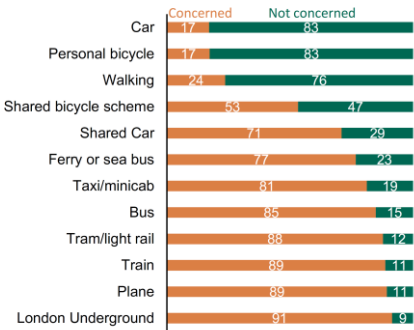
Chart 1: "Which of the following best reflects your current experience of the outbreak?"



Source: National Travel Attitudes Study: Wave 4 (Provisional)

27. The impact of the pandemic on travel behaviour has included shifts in behaviour and suppression of travel and activity. Chart 6 from the NTAS illustrates, the perception of safety has been a key driver of these changes:

Chart 6: "How concerned for your health, if at all, would you be currently if you were to use the following modes of transport?"



Source: National Travel Attitudes Study: Wave 4 (Provisional)

28. It is worth considering the long-term impact that such a seismic change in behaviour may cause. Many workers who were accustomed to commuting have seen the possibility of remote working, and other workers may have changed modes on the basis of personal safety or in accordance with government guidance.

29. NTAS notes: "The coronavirus (COVID-19) pandemic had a substantial and potentially sustainable impact on active travel. When interviewed between May and July 2020, 35% reported to walk more and 38% reported to cycle more than before the outbreak of the coronavirus."

Source: National Travel Attitudes Study: Wave 4 (Provisional)

30. It is a recognised principle in Transport Planning that major events or changes are when enduring changes in modal choice are most likely to occur.

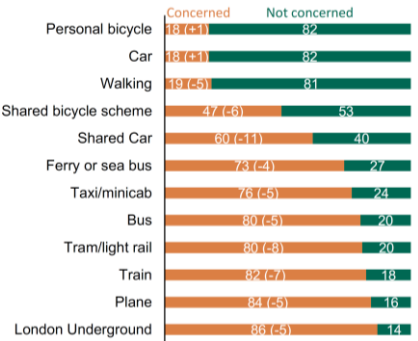
31. Considering the positive side of possible outcomes of the changes in behaviour, some of the active travel increases seen may continue, with ongoing benefits to public health and reduction in motor vehicle use.

"Of those that reported to walk or cycle more, 94% thought it [is] likely that they would continue to cycle and walk more once travel restrictions were removed."

Source: National Travel Attitudes Study: Wave 4 (Provisional)

32. NTAS Chart 7 illustrates that risk awareness engendered by the pandemic may have a lasting effect on behaviour:

Chart 7: "When the current travel restrictions and social distancing are removed, how concerned, if at all, for your health would you be when using the following modes of transport?"



Source: National Travel Attitudes Study: Wave 4 (Provisional)

2. Borough-wide



2.1 Borough-wide - Accessibility

33. Accessibility is the extent to which individuals, households and goods are able to move to the destinations they want by whichever mode they choose to use. This travel includes employment, shopping, commerce, medical and leisure purposes.

34. Thurrock's strategic transport connections provide strong local links by road to east London and to a lesser extent Basildon and Brentwood.

35. In comparison with the transport connections available to other areas of South Essex, Thurrock is located closer to road connections to the south of the river than other areas, through access to the Dartford Crossing. There are also strong local links by road to and from Basildon and outer areas of East London, Kent and central Essex

36. Thurrock also possesses strong rail links to central and outer east London, with future interconnection to Crossrail /

Elizabeth Line.

37. Freight connections are an important element of the Thurrock rail network, with the ports using rail connections alongside HGV road transport of goods.

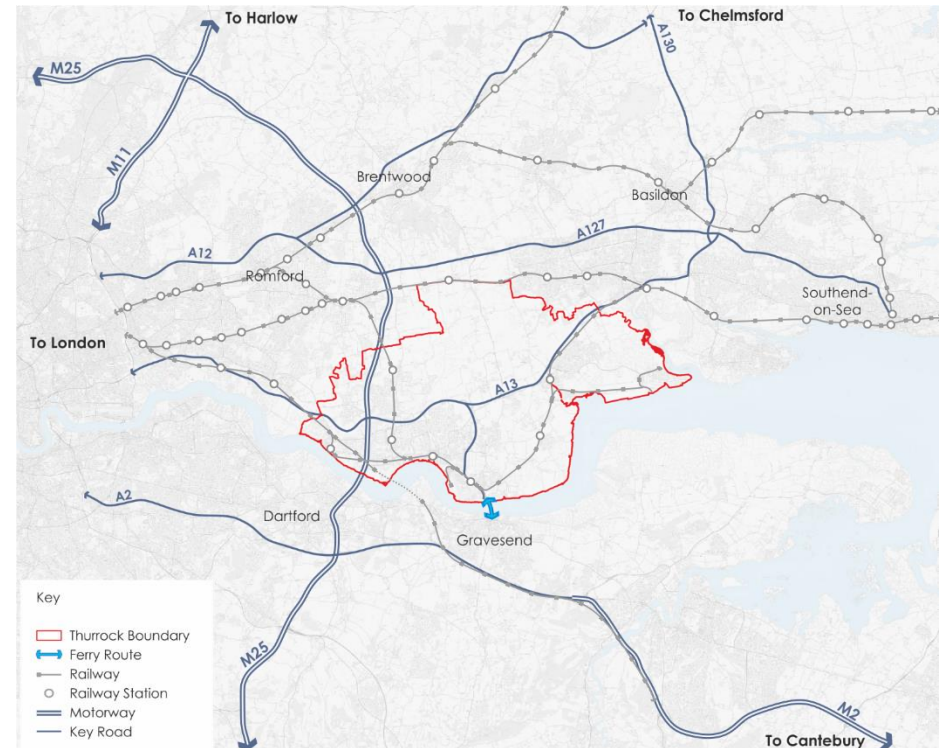
38. The ports in Thurrock are both a major employer and driver of economic activity locally, and nationally important for the movement of goods into the UK. The prospect of free port status offers an opportunity to continue to develop this area of employment in the Borough.

39. A ferry service connects Thurrock to Kent in the south, across the river Thames, as does the Dartford road crossing. The Thames Clipper is also planned to extend into Thurrock, with intent to provide both passenger transport and light goods transport along the route into London.

40. Although well served by transport links, as analysis in this report will show, the network around Thurrock can become congested

during peak times, in particularly the M25 motorway and A-roads linking Thurrock to London.

41. The questions remains open as to whether or not Thurrock has enough highway and public transport capacity available to accommodate for future growth.



2.1 Borough-wide - Accessibility

42. The data for understanding travel behaviour is derived from the statistics recorded by the Department for Transport's National Travel Survey (NTS). The NTS is a household survey designed to monitor long-term trends in personal travel and to inform the development of policy. It is the primary source of data on personal travel patterns by residents of England within Great Britain. This provides us information on what travel demand and modal choice currently characterises households in Thurrock.
43. Although this provides an overview of demand which allows for a general prediction of transport choice, it must be remembered that transport choice is affected by proximity to facilities and interchange. In particular modes with fixed points of access, like rail, bus and ferry, will typically have much higher usage close to those points and therefore those modes are often more dominant or important for those areas.
44. The M25 Motorway connects Thurrock to the wider motorway network. A-roads in the borough connect to London and to the east. The A13, A127, A1089 and A1014 are key connections between the three ports and the national network.
45. The corridor of A1089 and the retail and industrial environment around it create a western boundary to Chadwell St Mary and Tilbury. The areas to the east are more lightly populated than Grays with East Tilbury, Stanford-le-Hope and Corringham being surrounded by open land.
46. At 75%, the largest proportion of work related journeys to, from and within Thurrock are made by car. As a result of peak hour car reliance the Thurrock road network, the M25 motorway and A-roads linking Thurrock to London can become congested at peak times.

One Household in Thurrock,
on average, means....



11.4 Journeys per day



Which are made up of:



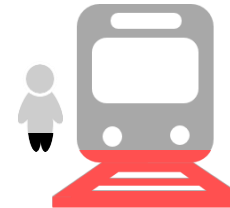
2.4 walking



0.2 cycling



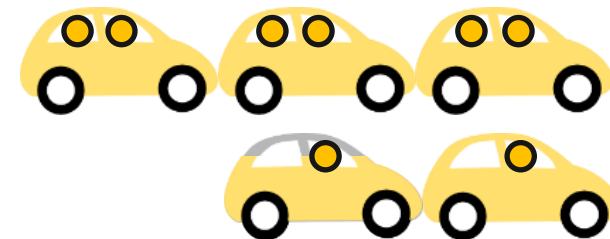
0.01 by ferry



0.2 by rail



0.7 by bus



4.8 as a driver and 3.1 as a car passenger

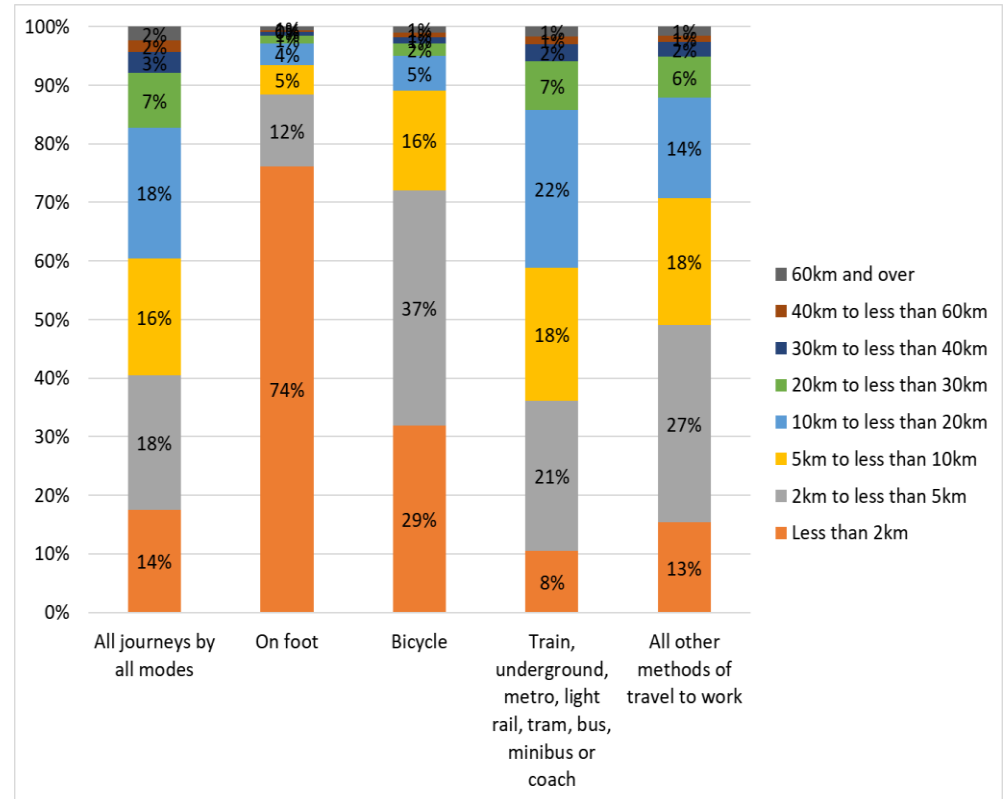
2.1 Borough-wide - Accessibility

47. Further study work will be undertaken to consider whether Thurrock has enough highway and public transport capacity available to accommodate future growth.
48. Data taken from the NTS indicates that 8% of all journeys within, into or out of Thurrock for any journey purpose use public transport. This compares with 9.1% share of journeys across England.
49. Public transport demand is concentrated in Thurrock's urban areas, particularly in the Grays area, around the rail stations. The access of passengers to public transport infrastructure by a quick walking journey seems to be the primary determinant of public transport utilisation. Areas where availability of service and infrastructure are present demonstrate the willingness of residents to make use of these opportunities.
50. Notably, at approximately 25%, rail makes up a significant proportion of employment journeys outbound from Thurrock. The majority are commuters to London. The available rail connections link Thurrock to London in the west and Essex to the east and north.
51. The Dartford road crossing, connects Thurrock to Kent, across the river Thames, as does the Tilbury ferry service, with passenger ferries docking at Tilbury and clipper services planned to extend on the Thames
52. Commercial marine movements are generally focused on international trade and movement.
53. The retail and business zone of Purfleet and Lakeside and the M25/A282 corridor create a separation between Purfleet and Aveley residential areas and Grays and Chafford Hundred.
54. Primary commercial land uses are scattered across urban areas in the borough. Shopping areas are concentrated in town centres and urban areas, the large shopping area to the west is the Lakeside Shopping Centre focused around motor vehicle access.
55. Primary industrial land uses are concentrated around the port areas and the Lakeside basin. There is an extremely strong focus on the marine operations with access to the Thames, the estuary and onwards to the Channel and international waters.
56. The value of the rail network for movement of freight to and from the ports has been strongly expressed by the port operators whilst recognising the importance of rail connectivity for their workforce. The port operators have expressed a desire to improve rail freight connectivity to complement their marine operations.
57. For journeys within Thurrock, the proportion of journeys to work on foot, by bicycle, by ferry and by bus is greater. For journeys to work of less than 2km 34% of journeys are made on foot, which accounts for 7% of all daily journeys to work. For journeys to work of less than 30km, 30% of journeys are made using non-private car modes. Walking journeys are mostly (74%) under 2km, cycle journeys are mostly (82%) under 10km, and most of them (67%) are under 5km.
58. There are a range quality and connectivity of walking facilities within urban areas along vehicle corridors and with some separate footpath connections within the more modern housing areas. Some rural connection are on Public Rights of Way, but the networks have evolved rather than being strategically led.
59. The same is true for cycle provision where facilities are provided but are not comprehensively connected.

2.1 Borough-wide - Accessibility

60. Passenger growth levels at Stanford-Le-Hope and East Tilbury are lower in comparison to adjacent stations, although still strong by national standards. Further studies could establish whether this trend is due to an absence of available capacity in the train stock and platform capacity suppressing demand, attractive factors of other stations or for other reasons.
61. Through consultation with the train operator (C2C) the view in 2019 (pre-COVID) would have been that capacity upgrades would be required soon. As a result new trains are due to be brought into service in 2022 to deliver increased capacity.
62. It is the view of the train operator (C2C) that current links to other transport modes connected to employment destinations are adequate for current demand.
63. In the view of the train operator additional employment destinations may require transport links between new destinations and rail stations to be developed to strengthen demand and access.
64. Higher frequency train services would require improvement to signalling infrastructure, with onboard GPS, and constant service monitoring. The train operator has suggested that, working with the DfT, service improvements in the are could deliver 24 trains per hour.
65. Since the imposition of COVID restrictions and concerns over safety during 2020, passenger numbers have reduced to a low of around 26% of February 2019 patronage.
66. The passenger numbers have rebounded to around 40-50% of 2019 patronage in the summer of 2020, but with reintroduction of restrictions in late 2020 and early 2021 passenger numbers have fallen once again.
67. The discussions with the train operator indicated there is an expectation that there will be significant changes to working practices, but overall London will remain a locus of economic activity and patronage will climb over the long term.

Distance travelled percentages by mode



2.1 Borough-wide - Accessibility

Headlines

- 68. Inbound traffic in the morning peak hour is private car dominated – 80% car.
- 69. Outbound journeys are considerably more sustainable, and focussed towards London – 29% of journeys use rail, 84% of all rail journeys are to London Boroughs.
- 70. Journeys internal to Thurrock are a broader mix of modes, and sustainable travel makes up a significant proportion of journeys – 21% of journeys are on foot.
- 71. The connections to London Stations via Rail are clearly a great attractor for Thurrock, and provide an opportunity for sustainable travel, with network and operational enhancements planned to accommodate forecast passenger demand.
- 72. Cycle facilities provides access across Thurrock, however, the network has gaps, mixed levels of provision, and severance by major highway routes, in particular the M25 and A13.
- 73. The Riverfront provides interchange opportunities to the ferry, and services are expected to expand with the introduction of Thames Clipper services.
- 74. Consultees expressed a preference for planned development to connect into existing networks and hubs to maximise the benefits of planned improvements.
- 75. A concern for future development is access to amenities such as supermarkets, healthcare and schools by non-car modes. As development plans come forward, non-car access to such facilities should form part of the integrated planning for those developments.
- 76. For strategic development a key challenge is access to GPs by non-car modes, and pharmacies as front-line healthcare. The introduction of Integrated Medical Centres provide an opportunity to ensure development proposals have access to high quality medical services

Conclusion

- 77. Travel patterns in Thurrock are heavily focused on the private car, but where opportunities to use other modes are convenient and available, people have been willing to use them.
- 78. The network of transport routes has severance issues caused by the busiest roads within Thurrock, particularly the M25 and A13. This notably causes a level of difficulty in east-west travel and therefore impedes travel options and opportunities for residents.
- 79. The rail network is in the process of being improved to increase capacity. This process will be important to provide for travel in the future, as current decreases in travel are expected to revert to growth in the longer term.
- 80. The rail sector considered that the linkage of stations to new residential development and growth of employment development will be crucial to supporting non-car travel.

2.2 Borough-wide - Congestion

81. As identified in national policy, congestion is a consequence but also a burden on economic success:

“For many, traffic is an inconvenience, though some might also describe it as a consequence of economic success. Indeed, it’s a sign that a lot of people have jobs to go to. However, if left unchecked it can have a significant impact on our towns, cities and communities, and act as a drag on local growth.

The Department for Transport (DfT) predicts up to 55 per cent growth in traffic levels by 2040. However, levels of congestion are predicted to rise – up to 85 per cent worse in the same period”¹.

82. This section of the Baseline study examines the factors contributing to congestion on the transport network and travel demand within Thurrock.

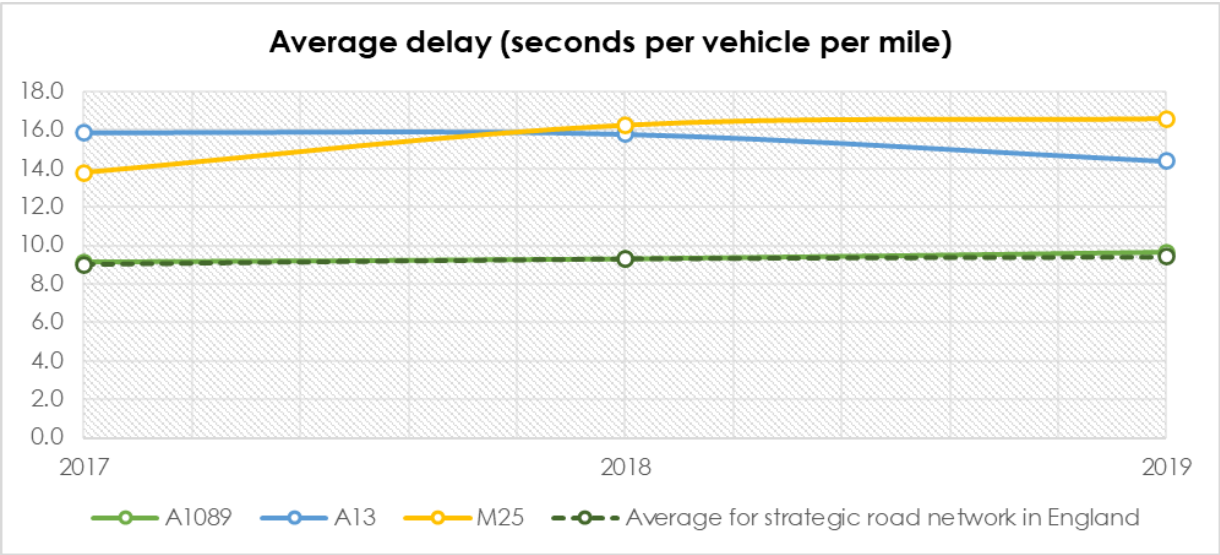
83. The effects of the COVID19 pandemic on congestion will not be known for some time. New ways of living may derive longer but lesser peaks or a general downturn in commuting.

84. The average delay on key routes in Thurrock is significantly higher than the average for England on the M25 and A13.

85. The delay is focussed around particular network sections, the worst performing being the A13 westbound between A126 and M25/A282 and the A282 Dartford Crossing section on the M25 route.

86. The trend in congestion does not indicate a definite upwards or downwards direction, with the congestion level on average tracking the general trend nationally of slight increases in congestion over time.

87. Of the 25,500 inbound movements and the 40,700 outbound movements to Thurrock each day the largest proportion come via the M25 motorway and A13, particularly for HGVs to the ports and industrial zones. East-west A-roads and more local roads from the north also carrying large volumes of traffic. This is particularly pronounced in the evening peak hour as shown in the data displayed in Appendix A.



2.2 Borough-wide - Congestion

88. Around 34,000 vehicles per day leave Thurrock via the M25 motorway, 9,500 of which are HGVs (28% of traffic leaving Thurrock). East-west A-roads and more local roads from the north carry much outbound traffic to the trunk road network, with over 50,000 vehicles using the busiest non-trunk routes on a average day.
89. For journeys internal to Thurrock, the 50,000 daily vehicles on the busiest routes use are on east-west A-roads but some more minor roads in urban areas are also carrying significant amounts of traffic, with a number of routes carrying around 20,000 vehicles daily . Routes leading to ports have high proportions of HGV traffic.
90. Many of the key roads in Thurrock, the M25 motorway and A roads have high average speeds (50+mph) but also the difference between peak and off-peak average speed shows that speeds reduce on sections of these roads indicating areas of congestion.
91. To determine the network sensitivity to congestion modelling of traffic behaviour would provide greater understanding of the network and points of potential capacity problems. Network resilience cannot be completely understood through average speed and traffic volumes. It is reasonable to conclude that the absence of an increasing congestion trend in Thurrock indicates that the current transport situation is not degrading unless adverse conditions such as road closures or traffic incidents occur.
92. The data contained in Appendix A indicates that the speed reductions are greater in the evening peak hour than in the morning peak hour. Journey time reliability is lower in the evening peak hour than the morning peak hour. By both measures the network performs less well in the evening peak than the morning peak. This is not typical for urban areas, where a more diffused evening peak tends to occur due to workplaces and schools having different leaving times. In Thurrock the situation is not entirely typical, but this may be a symptom of the large logistics and industrial sector within the borough.
93. Hot spots of congestion within Thurrock coincide with key bus and cycle corridors, indicating that congestion will have an effect on non-car modes. This can be observed from the data held in Appendix A, with a number of hotspots on main bus routes.
94. The colocation of congestion for private car and major bus services and cycle routes is likely and difficult to avoid in urban areas. Key corridors which provide the best journey time attract private vehicles the most heavily as well as providing direct access for other modes. However, the balance between modes can be adversely tipped towards the apparent safety and ease of use of the private car in congested areas, as public transport impacted by congestion is less attractive as reliability is impacted, and walking and cycling experience more intimidation and safety concerns.
95. The majority of journeys to, from and internally in Thurrock are made by private car. Around 80% of journeys to work are made by car, either as a driver or passenger. For journeys of less than 2km to work, 50% use a private car, but for journeys over 2km this increases to 76%.
96. Internally, many journeys to work in Thurrock are made on foot, by bicycle and by bus. For journeys to work of less than 2km 34% of journeys are made on foot, which accounts for 7% of all daily journeys to work.
97. Notably, rail makes up a significant proportion of employment journeys from Thurrock, around 25%. This will be mainly commuters to London.
98. This reliance on rail for commuting into London had resulted in congested peak hour trains, however, as noted, the impacts of the pandemic have resulted in a significant down turn in rail use. A trend which will take time to reverse.
99. Bus companies have not reported any major capacity issues with their services at present but have noted the impacts on reliability of services. Local plan growth will likely drive demand for additional capacity and services.

2.2 Borough-wide - Congestion

Headlines

100. The trend across major roads monitored by the Department for transport indicates key routes in Thurrock are experiencing different trends in congestion:

- A1089 congestion tracks national trends
- A13 congestion has a downward trend 2017-19
- M25 congestion has an upward trend 2017-19

101. Thurrock's journey purposes data taken from the national travel survey shows broadly typical purpose split, but notably higher than national average proportion of shopping journeys

102. Travel out of Thurrock into London makes up 40% of AM peak journeys.

103. The programme of route improvement on A13 and key junctions in Thurrock correlates with the points of highest average delay.

104. Modal shift/ and home working provides a possibility for congestion reduction, as commuting travel is a substantial proportion of the peak hour journeys.

105. Data collection and transport modelling would enable informed decision making regarding the sensitivity of congestion on key routes.

106. Lower Thames Crossing will increase strategic network capacity, but as it is likely to cause significant traffic re-routing, the impact cannot be reliably predicted without robust local traffic modelling of the network changes.

107. The rail operator and Network Rail are working to increase rail capacity.

108. Additional halting points will change the operation of the rail network, therefore planning for new development will need to consult with rail operators and determine appropriate strategy provide effective rail

links, including enhancing connections to existing stations.

109. The severance of east-west travel in Thurrock by the M25 limits route options, and therefore increases congestion and network sensitivity.

110. There are bottlenecks on key routes for freight, and large increases in freight movement volumes are forecast over the lifetime of the Local Plan.

111. The movements in and out of Thurrock are extremely tidal, with large volumes outbound in the morning and inbound in the evening.

Conclusion

112. The average level of congestion in Thurrock is higher than the average for England on key routes (the M25 and A13).

113. The trend of congestion is upwards on the M25 and downwards on the A13, overall the average network delay appears stable under current

conditions.

114. Rail passenger capacity would have soon been reached had not the COVID-19 pandemic occurred. Over the long term, additional capacity is expected to be needed.

115. Plans from the rail operator and Network Rail to increase rail network capacity need to be revisited post pandemic.

116. Severance of east-west travel and limitation of available routes increases network sensitivity.

117. Modelling of future traffic behaviour is needed to fully understand network sensitivity, especially if Lower Thames Crossing is completed.

2.3 Borough-wide - Mobility

118. Mobility is the ability of people and goods to move efficiently and freely around an area. It is a crucial factor in economic growth and wellbeing for the population.

119. The availability of transport and the destinations served make up the transport network available to each resident. Barriers and opportunities to access influence social and economic behaviours.

120. A mix of mobility options across Thurrock will assist with quality of life and social and economic inclusion and should reflect the varying levels of physical ability and wealth to access important destinations.

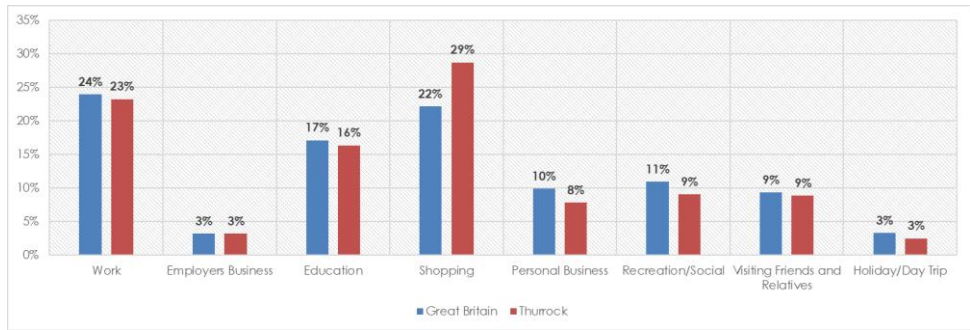
121. This section examines the factors supporting that mobility, by multiple modes of transport.

122. The journey purpose data analysed from TEMPro indicates journeys in Thurrock contain 30% more shopping-related journeys than the national average, but otherwise conforms to journey patterns across Great Britain. The next most dominant journey purpose is access to employment.

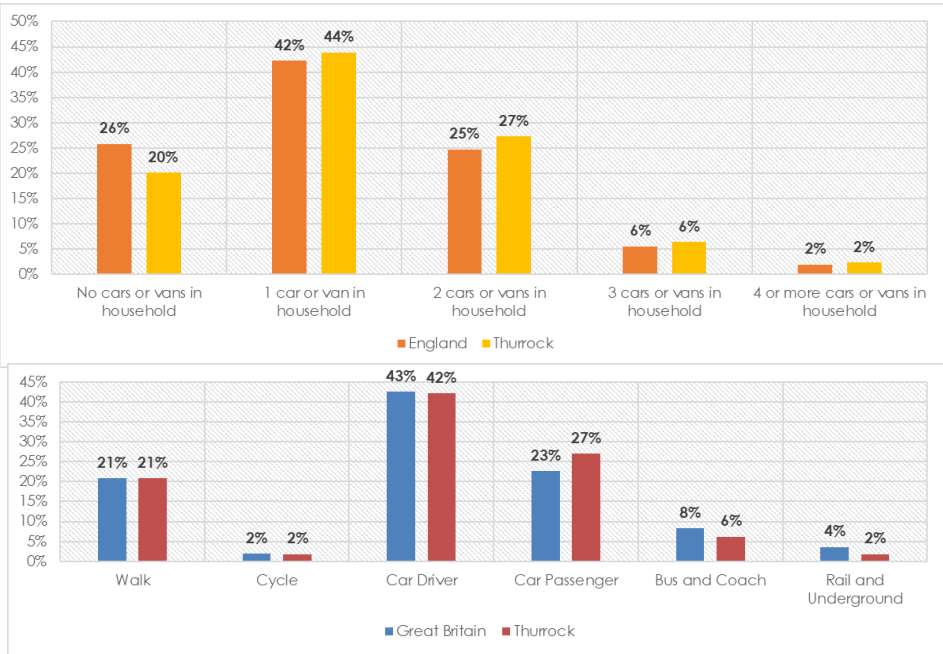
123. Car ownership in Thurrock is above the average for England, with 20% of households having no car or van compared to the national average of 26%.

124. Residents of Thurrock are slightly less likely to choose to drive than the average across Great Britain, with 19% more car passenger journeys than the average for Great Britain (Source: National Travel Survey via TEMPro version 7.2).

Great Britain and Thurrock split between journey purposes:



Car ownership in England and Thurrock:



2.3 Borough-wide - Mobility

- 125. The M25 Motorway connects Thurrock to the wider motorway network, and A-roads connect to London and to the east.
- 126. In particular the A13 running east-west through Thurrock connects the Greater London side of the Authority and the M25 with South Essex and Basildon and Southend to the east.
- 127. The Dartford Crossing provides the road link to Kent, and is a focus of demand, as is the M25 more generally.
- 128. The network has some restrictions on access to particular key route such as the A13 based on direction of approach, which focuses transport demand along the remaining available trunk road access opportunities.
- 129. Schemes which have been identified as committed schemes and will change and improve the road transport network within Thurrock are:

Projects Underway

- A13 widening, 2021
- Integrated Transport Block Capital Programme 2020/21:
 - Public transport infrastructure
 - Walking & Cycling (PRoW)
 - Parking Management
 - Minor Works
 - Freight Management
 - Road Safety Engineering
- Safer Routes to School
- DfT Block Maintenance Capital Programme 2020/21
- A126 Safer Roads Programme, 2020/21 (3 year programme)
- Emergency Active Travel Tranche 1 measures (various)

Committed Projects

- Stanford-le-Hope Interchange, 2023
- Grays South Regeneration: Underpass and Public Realm, 2023
- GTC bus station enhancements (accelerated scheme)
- A13 East Facing Slips, 2025
- A126 bus priority (MSA to Cycgnet View)
- EAT Tranche 2 measures

(various measures following consultation)

- A1013 Treetops school access scheme
- N13 cycle route enhancements
- 130. The proposal of the Lower Thames Crossing additional river crossing and new strategic link crossing Thurrock presents opportunities for improving the transport network within Thurrock if the linkages with other levels of the transport network are made.
- 131. At present the details of the proposals are being considered and submission of a revised application is expected in 2021.
- 132. Critical functions for the trunk road within Thurrock is the effective transit of freight from the existing and expected expansions of the ports. This would support economic development both within Thurrock itself and the wider region, including the movement of freight into London.

- 133. There is a clear pattern that residents living in the more rural areas of Thurrock own more cars, typically two or more per dwelling. This reflects that rural areas have fewer public transport services, and as such residents are more car dependent.
- 134. Households in urban areas are recorded as owning fewer cars. In particular, residents in Tilbury and Ockendon areas are the most likely not to own a car.
- 135. There are few large car parks and these are concentrated around Grays. in the southwest.
- 136. The provision of appropriate parking capacity across Thurrock will be an element of the overall transport strategy to complement growth of interchange onto rail, and parking for employment or leisure purposes

2.3 Borough-wide - Mobility

137. There are seven rail stations within Thurrock, with up to nine trains per hour (Grays) serving destinations including London Fenchurch Street, Southend and Basildon. Both London Fenchurch Street and Southend are 35-40 minutes journey from Grays.

138. Thurrock's rail connections are generally east-west, serving demand to/from London. There are no direct rail connections to the north or south across the river. The high-speed 1 (HS1) line runs through Thurrock in the southwest but does not have an interchange.

139. The rail network also serves the large distribution, industrial and port locations within Thurrock, providing a strategic alternative to HGV transport of goods. These journeys share rail network sections with the passenger rail network and therefore compete for paths.

140. There is an extensive bus network operating in Thurrock which has some connections externally, including services

into Greater London, Essex and Kent.

141. The highest frequency areas run through the centre of Grays, which is also close to Grays Rail Station, providing good interchange opportunities.

142. There are ferry links across the river Thames, linking Tilbury in Thurrock to Gravesend in Kent. The ferry is key in bridging the severance created by the river between neighbouring Tilbury and Gravesend. The ferry gives an alternative link for residents either side to employment opportunities and services.

143. The service is for passengers only and crossings take between 5 and 10 minutes, depending on river traffic. Services run around every 30mins during the day, 5:30am – 7pm, Mon-Saturday.

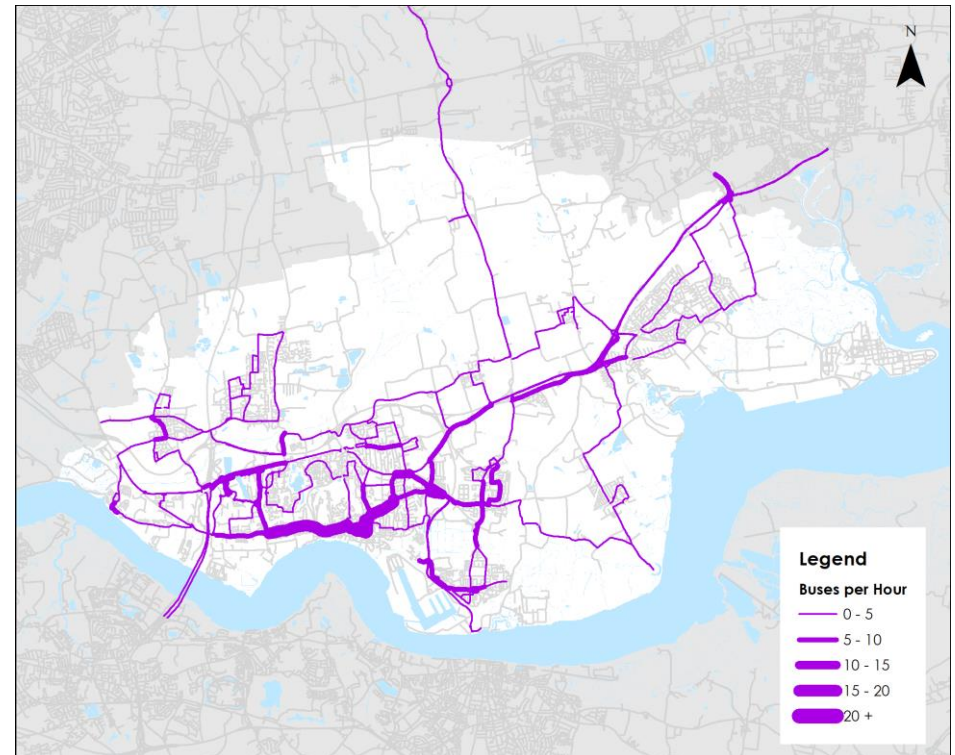
144. Demand for the service is higher in summer months but still significant through the winter with thousands using the service each month.

145. In the future there are plans to expand marine services, and for additional jetties which could serve both passengers and light freight. This is proposed through an extension of the Thames Clippers.

146. The bus network connects all settlements within Thurrock, and provides links to the key

employment areas and into London.

147. The highest frequency and conglomeration of routes run through Grays, and between Grays and Stanford-le-hope. Other services can be lower infrequent as they extend to the more rural settlements.



2.3 Borough-wide - Mobility

Headlines

- 148. Higher car ownership than national average, 28% more households have access to a car than the average for England.
- 149. Despite higher car ownership, Thurrock residents are slightly (1%) less likely to drive than national average.
- 150. Thurrock has frequent rail services into London stations, with a 35-40 minute journey time to Fenchurch Street.
- 151. Thurrock has an extensive bus network, which connects settlements, key employment locations, and into Greater London.
- 152. Thurrock has good interchange opportunities due to key destinations located with complementary connectivity between modes.
- 153. The planned river traffic expansion provides opportunities to increase non-car travel and provide interchange opportunities for

travel into London and across the river.

- 154. The severance of east-west travel in Thurrock by M25 influences and constrains mobility and the choice of mode of travel between Purfleet, neighbouring areas and Grays.
- 155. The cycle network has issues of conflicting priority with private car and with consistency. Whilst there are a number of facilities, the strategic approach to the network can be expanded and barriers to use by inexperienced or less confident cyclists should be considered carefully.
- 156. The balance of priorities between public transport access vs the private car should be considered at key locations within the network. This could increase bus service reliability, encourage a move to public transport and reduce peak hour congestion.

Conclusion

- 157. The transport network in Thurrock provides a broad range of high-quality connections via public transport and the road network.
- 158. Connections to London by all modes are important for residents of Thurrock.
- 159. Higher car ownership in Thurrock has not led to higher average car use for journeys within, into and out of Thurrock.
- 160. The bus and ferry services are important for more local journeys, and connections to these will continue to be important.
- 161. The most used mode in Thurrock is driving a private car, followed by being a passenger, then walking, then use of a bus. These modes account for 96.5% of all journeys in Thurrock. Walking and bus routes will therefore be important for encouraging non-car travel.

2.4 Borough-wide - Safety

162. Personal Injury Accident data over the last 8 years (2011 – 2019) has been analysed to understand the location of accidents and trends of road traffic accidents across Thurrock.

163. The overall number of accidents has been steadily falling, with 403 accidents in 2011 and 267 in 2019. Fatal and slight accidents have decreased overall, however, the trend of serious accidents has increased slightly.

164. The number of pedestrian and cyclist casualties has also been falling. Cyclists' accidents have decreased at faster rate.

165. Between the start of 2017 and the end of 2019, there were 853 road traffic accidents across Thurrock, resulting in:

- 7 fatalities (1%) ,
- 177 serious injuries(21%)
- 669 slight injuries(78%)
- 152 pedestrian or cyclist accidents - predominantly in urban areas around Grays, Ockendon and Stanford-Le-Hope, with less prevalence in

The Fens

- 1 cyclist fatality (in Purfleet)
- 1 pedestrian fatality (in South Ockendon)
- 1 fatality involving an HGV (A13 Stanford-le-Hope)

166. 104 pedestrian casualties (9%), which is a lower percentage than the equivalent figure for Essex and Great Britain

- 54 cyclist casualties (5%), which is lower than the equivalent figure for Essex and Great Britain
- 77 involving HGVs(9%) - located primarily on the trunk roads and motorway. Some were close to Tilbury and Purfleet.

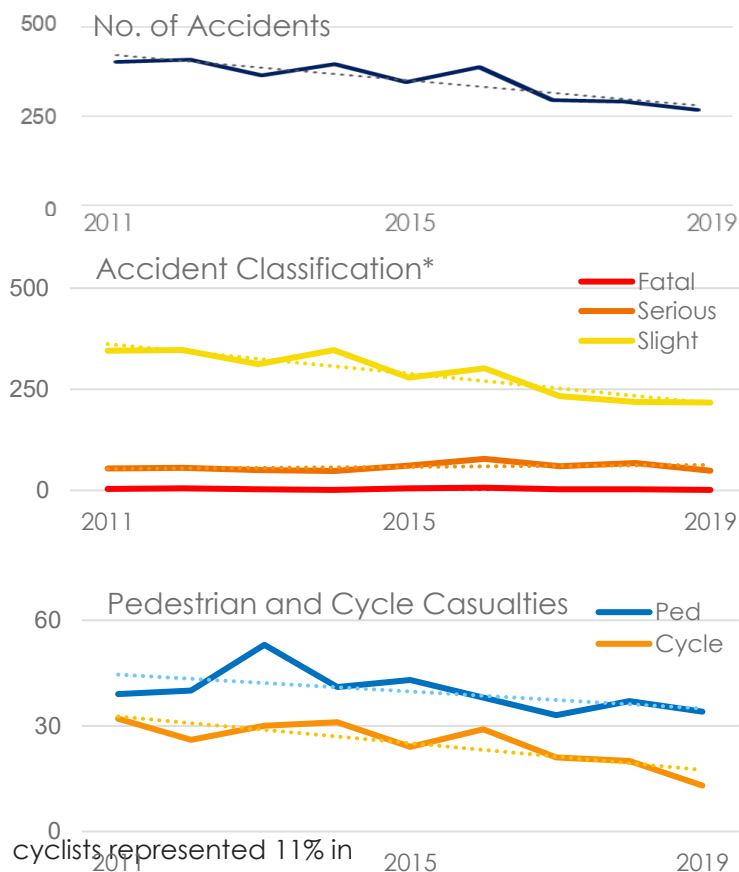
167. National and regional data has been obtained to provide a benchmark for accidents within Thurrock. The Department for Transport provides road traffic accident data for Great Britain, and the Safer Essex Roads Partnership (SERP) provides a road safety service across 'Greater Essex' (including Essex County Council, Southend-on-Sea Borough Council and Thurrock

Council).

the UK; 7% across Essex; and 3% in Thurrock.

168. The 2019 data shows that of all casualties:

- pedestrians represented 14% in the UK; 11% across Essex; and 9% in Thurrock.



*The reporting of road traffic accidents changed in 2015/2016, which has meant that the number of casualties recorded as serious has increased in Great Britain. As such, trends should be viewed as a whole over the 8-year period, not by a year-to-year basis.

2.4 Borough-wide - Safety

Headlines

- 169. There has been a consistent reduction in accident rates between 2011 and 2019: 403 to 267, a 34% decrease.
- 170. Cycle and pedestrian injuries also declined, by 59% and 13% respectively.
- 171. There is a very low level of serious injuries and fatalities and these have stayed at a consisted level over the assessed period.
- 172. Accidents involving HGVs were most common on the trunk roads.
- 175. To maintain or improve the trends towards safer travel networks, over the Local Plan period, care should be taken to creating safe environments in new development and infrastructure in which vulnerable road users can mix with motor vehicles.

Conclusion

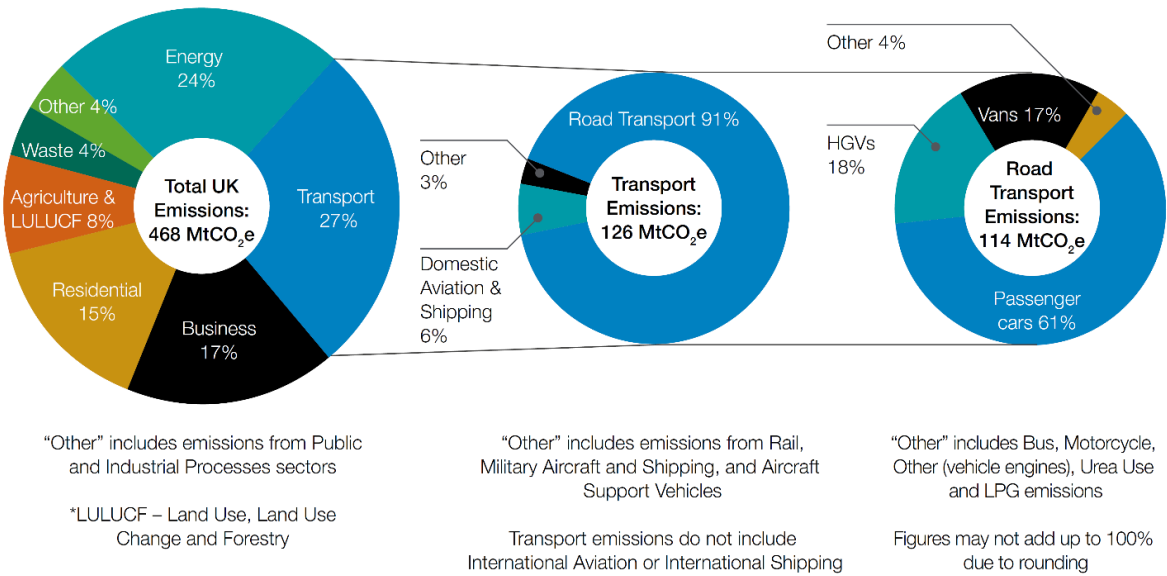
- 172. It is important to maintain existing trends of improving safety.
- 173. Compared to national and regional averages, Thurrock performs better for pedestrian and cyclist safety and with fewer fatalities.
- 174. The expansion of pedestrian and cycle routes, and legibility

2.5 Borough-wide – Pollution, carbon reduction and health

176. The Department for Transport “Future of Mobility: Urban Strategy - Moving Britain Ahead -2019” highlights the impacts of transport on pollution, and the important for the reduction of pollution in the UK of changing this picture:

“Greenhouse gas emissions: Today, transport is the largest greenhouse gas emitting sector in the UK, accounting for 27% of greenhouse gas emissions. Road transport accounts for 91% of these.” [Paragraph 2.9 & Figure 3]

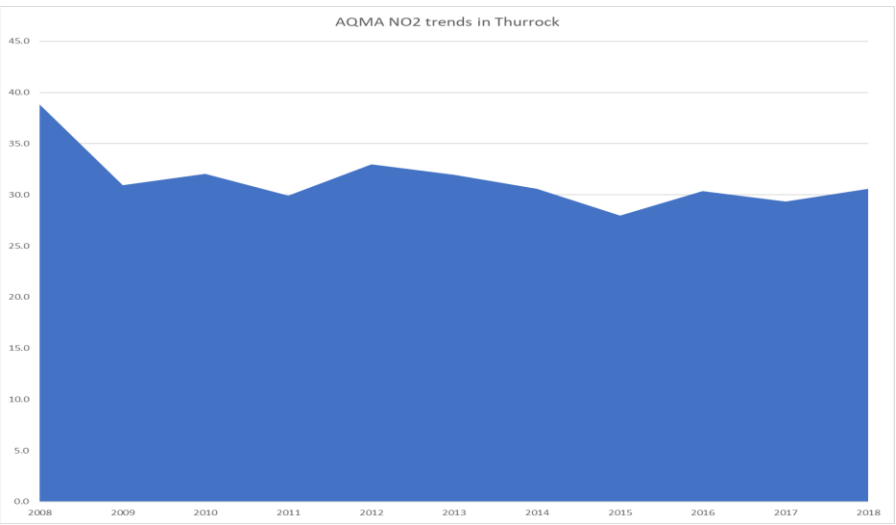
Figure 3 Road transport emissions as a share of UK greenhouse gas emissions from transport¹⁰



Source: BEIS (2018). Final UK greenhouse gas emissions national statistics: 1990-2016

178. Consequently it is a government priority to change the vehicle mix using UK Roads, with a ban on the sale of new petrol or diesel powered cars from 2030.

179. Overall NOx monitoring shows a general downward trend of emissions within Thurrock, with a 21% drop between 2008 and 2018, with an average year-on-year drop in total values of 2%.



2.5 Borough-wide - Pollution , carbon reduction and health

180. The map below illustrates Thurrock's current Air quality Management Areas (AQMA's).

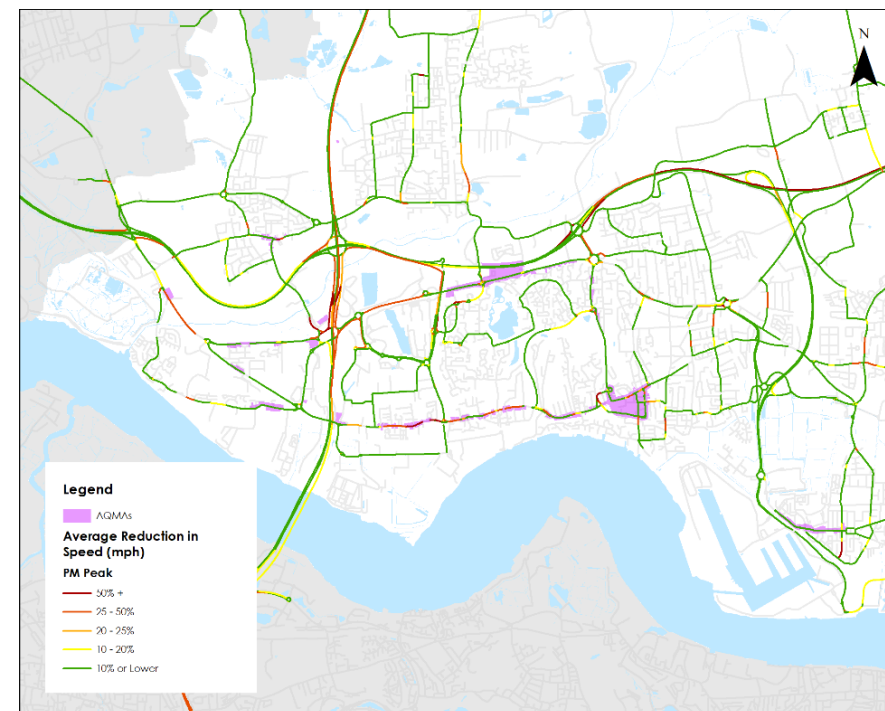
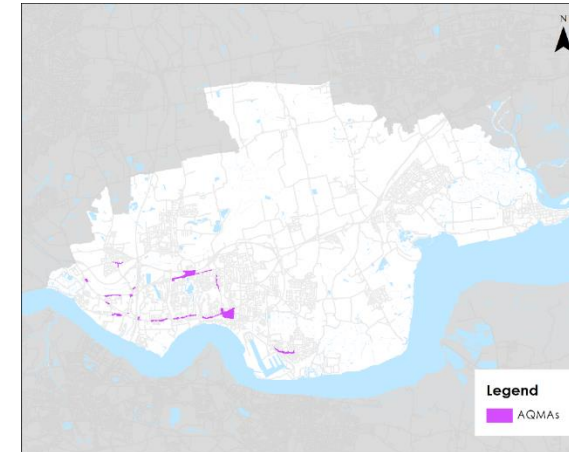
181. Areas designated as AQMA's are areas that local authorities assess to be areas of poor air quality. The objective is to monitor the potential exposure of residents to poor air quality and ensure the national air quality objectives are reached.

182. It is no coincidence that areas with poor air quality which need to be designated AQMA's are areas where roads are congested. This is not necessarily universal, and it is notable that in the map shown of speed reductions in the PM peak as a proxy measure of congestion some AQMA's are along congested routes. There are AQMA's, however, which are not on the most congested routes, and congested routes which are not within AQMA's.

183. Thurrock's AQMA's are concentrated around the Grays urban area and key arterial urban roads. The southern arterial road, London Road, running west from Grays experiences significant congestion in peak times and is an AQMA. Similarly, the North Stifford Road ,that runs east-west parallel to London Road from the M25 motorway, is classified as an AQMA.

184. From discussion with key transport operators HGV fleets continue to modernise, with the efficiency of vehicles being a priority for operators. Efficient routing and avoidance of congestion being supported by in-vehicle technology continues to progress.

185. Transport for London has a programme of electrification and equipping of bus depots with charging infrastructure which will enable electric buses to come in from Greater London to Lakeside Shopping Centre.



2.5 Borough-wide - Pollution, carbon reduction and health

186. At present local routes do not have a specific timeline for electrification, but this is expected to progress in the course of vehicle upgrades and as charging infrastructure is installed once this is compatible with operations and commercially viable.
187. Taxi fleet fuel types are not currently monitored by Thurrock, and at present no plans are in place to incentivise fleet changes to electric vehicles.
188. Modernisation of the Thames Clipper fuel systems is planned with initial conversion to hydrogen fuel planned as new vessels are built, with additional piers and the carriage of light cargo to utilise vehicles along the clipper routes.

Headlines

189. The Average year-on-year drop of NOx emissions in Thurrock is 2%.
190. There has been a total NOx emission drop of 21% over the period 2008 to 2018.

191. There is limited information about what the current emission status or power source for taxis and buses are within Thurrock.
192. Plans for improvement to emissions on buses operated by Transport for London and the Thames Clipper services are in process.
193. AQMA zones do not necessarily match areas of greatest congestion.

Conclusion

194. AQMA zones should be reviewed regularly, and consideration given to whether all the existing AQMAs are appropriate.
195. To provide information about the level of emissions associated with transport Thurrock Council could introduce fleet monitoring for transport providers such as taxis and bus operators, to understand progress over time towards less polluting drive systems.

196. Information on fuel uses would allow consideration of incentives to promote transfer away from fossil fuel use. Coordination of disparate modernisation schedules would be easier if information was held in one location. Monitoring of transport impact on pollution will require data collection from a range of operators.

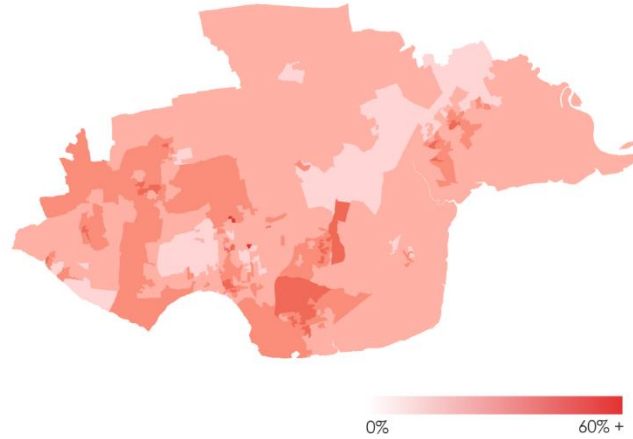
2.6 Borough-wide - Affordability

197. This section gives an overview of deprivation, health, age and education levels in Thurrock in order to give an understanding of the possible barriers to transport affordability within the authority.

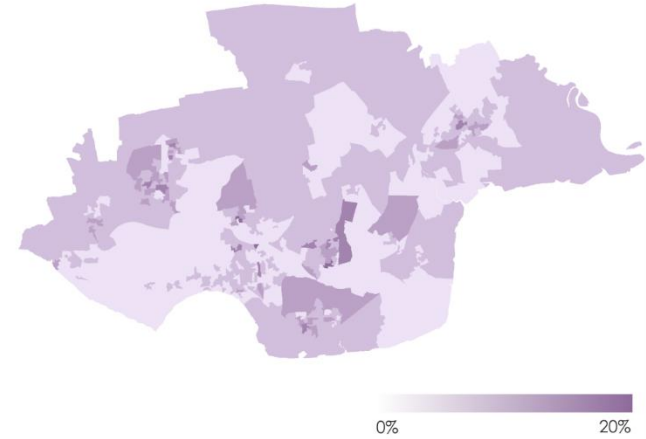
198. From the data assimilated through the Census 2011, the most deprived areas of Thurrock are concentrated around urban areas, in particular, Tilbury, Chadwell St Mary, Corringham and South Ockenden.

199. There is a general correlation in Thurrock between areas of high deprivation and bad health. Some clear areas have very high levels of both, these are Chadwell St Mary and Tilbury.

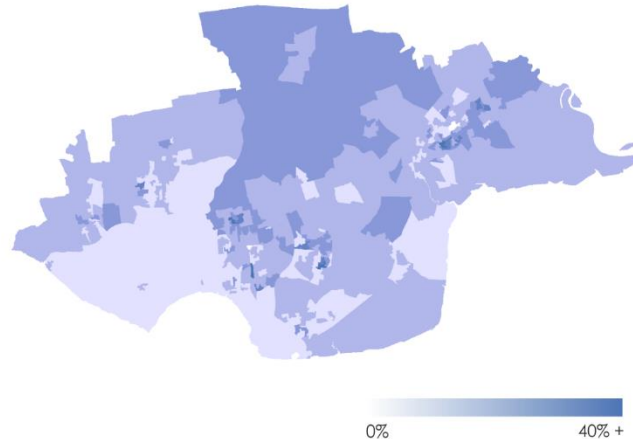
% of People Deprived in more than one Dimension
Census 2011



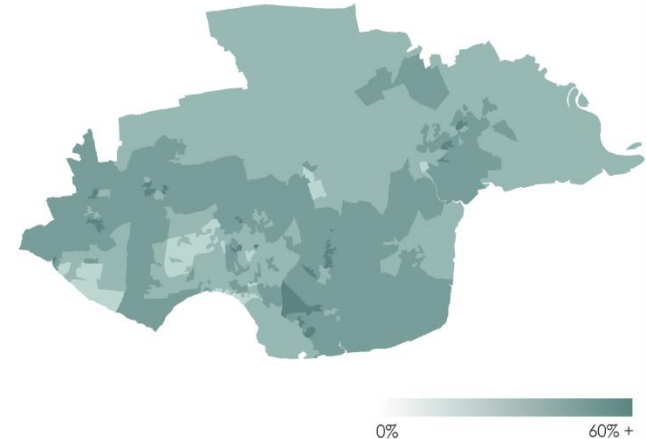
% of People with Bad or Very Bad Health
Census 2011



% of People aged 66 or Over
Census 2011



% of People with Level 1 or Fewer Qualifications
Census 2011



2.6 Borough-wide - Affordability

200. There is some correlation between areas of high deprivation, bad health and low education, with urban areas in Grays, Tilbury and Ockendon correlating between all three measures. Low education levels and high deprivation closely correlate across most urban areas in Thurrock.
201. Older age does not clearly correlate with measures of deprivation, bad health and low education but there are pockets of areas across Thurrock that do.
202. The Census data for residents who are 66 years old and over shows a general trend that more rural and suburban areas have higher concentrations of older residents. This indicates younger residents live in urban areas, perhaps to be closer to employment areas but also shows that older residents live more remote from public transport connections.
203. There are pockets of areas with high concentrations, of older residents in Tilbury (i.e. over 40%). In that same area many residents have limited qualifications. This is equivalent to fewer than 5 GCSE passes between grades 4 to 9.
204. Notably the measures in which Thurrock does not match or exceed the average Great Britain values is the level of qualifications obtained. Across most measures the level of education obtained is lower on average than the average for Great Britain.
205. The Census data shows that the most qualification deprived areas of Thurrock are concentrated around urban areas, in particular, Tilbury and Ockenden.
206. In spite of the apparent low level of qualifications in comparison to the average performance across Great Britain, Thurrock performs relatively well across a range of employment-related measures.
207. The level of employment exceeds the average for Great Britain, and the level of economic activity is higher than the average. Thurrock has more

working households, and significantly less workless households than the average.

Measure of economic performance	Thurrock (%)	Great Britain (%)	Comparison
Economic activity rate - aged 16-64	81.5	78.9	2.6
Employment rate - aged 16-64	77.1	75.8	1.3
% aged 16-64 who are employees	66.6	64.6	2
% aged 16-64 who are self employed	10.5	10.9	-0.4
Unemployment rate - aged 16-64	5.5	4	1.5
% who are economically inactive - aged 16-64	18.5	21.1	-2.6
% of economically inactive who want a job	13.9	20.8	-6.9
Working households	60.1	58.9	1.2
Mixed households	28.6	27.2	1.4
Workless households	11.3	13.9	-2.6
% with NVQ4+ - aged 16-64	28.6	40.3	-11.7
% with NVQ3+ - aged 16-64	47.8	58.5	-10.7
% with NVQ2+ - aged 16-64	66.8	75.6	-8.8
% with NVQ1+ - aged 16-64	80.5	85.6	-5.1
% with other qualifications (NVQ) - aged 16-64	10.1	6.7	3.4
% with no qualifications (NVQ) - aged 16-64	9.4	7.7	1.7

Source: NOMIS – Data to December 2019

2.6 Borough-wide - Affordability

Headlines

- 208. 11.3% of Households are workless, in comparison to 13.9% national average.
- 209. 15.6% of Thurrock residents have some limitation of their day-to-day activities due to poor health.
- 210. Relatively high employment levels are recorded, and Thurrock has higher performance than national averages for most employment-related measure.
- 211. Thurrock employment data shows opportunities for a mix of skill sets and educational levels are available.
- 212. Thurrock shows lower levels of qualification attainment than national averages.
- 214. Port expansions are likely to continue strong employment growth in Thurrock, and therefore ensuring skills match the needs of employers is important.
- 215. Ensuring future infrastructure and development serves all residents will be important for providing opportunities for all residents, including those with a range of health conditions and remote from good public transport connections.
- 216. Educational attainment is a weakness at the present time, and therefore should be considered as a potential opportunity to improve affordability of transport for residents of Thurrock. Access to educational opportunities will be needed to support efforts in this area.

Conclusion

- 213. Thurrock performs well in terms of employment and workless households.

2.7 Borough-wide - Summary and Conclusion

The findings of the Borough-wide baseline review are summarised below, with key issues and data highlighted.

	Key Statistics	Key Opportunities	Key Challenges
Accessibility	1. Inbound traffic – 80% car 2. Outbound – 29% Rail 3. Internal – 21% Pedestrian	1. Connections to London Stations via Rail 2. Cycle network expanding NMU access 3. Riverfront interchange opportunities, economic activity 4. Enabling growth in locations with higher connectivity 5. Planned increases in rail capacity	1. Connection of new development into existing networks and hubs 2. Access to essential services by active travel e.g. GPs/health, education, employment, food retail 3. Deriving a comprehensive public transport strategy 4. Coordination with rail and network operators
Congestion	1. A1089 congestion tracks national trends 2. A13 congestion downward trend 2017-19 3. M25 congestion upward trend 2017-19 4. Higher than national average shopping journeys 5. Travel out of Thurrock into London make up 40% of AM peak journeys	1. Programme of improvement on A13, key junctions 2. Modal shift/ home working 3. Encourage active travel 4. Data collection enables informed decision making 5. Lower Thames Crossing increasing network capacity if correctly configured 6. Increasing rail capacity	1. Severance of east-west travel in Thurrock by M25 and A1089 - and the prospect of the Lower Thames Crossing 2. Bottlenecks on key routes for freight 3. Extremely tidal movements in and out of Thurrock
Mobility	1. Higher car ownership than national average, 22% fewer households have no car 2. Residents slightly (1%) less likely to drive than national average 3. Frequent rail services into London stations, 35-40 minute journey time	1. Frequent rail services into London stations 2. Extensive bus network 3. Interchange opportunities due to key destination location near multiple modes 4. River traffic expansion 5. Balancing car ownership with sustainable mode use	1. Severance of east-west travel in Thurrock by M25, A1089 and Lower Thames Crossing 2. Derive strong active travel network and prioritise public transport over the private car 3. Improve cross river and London-bound marine travel
Safety	1. Decline in accident rates between 2011 and 2019: 403 to 267, a 34% decrease 2. Cycle and pedestrian injuries also declined, by 59% and 13% respectively	1. Improve on existing positive trends 2. Expand non-car pedestrian and cycle routes, and legibility of routes	1. Encourage and provide for active travel in new developments and infrastructure to allow a safer mix between vulnerable road users and vehicles.
Pollution	1. Average year-on-year drop of NOx emissions in Thurrock of 2% 2. Total NOx emission drop of 21% over the period 2008 to 2018	1. Introduce fleet monitoring for all modes 2. Incentivise or promote transfer away from fossil fuel use 3. Capitalise on initiatives to provide alternative fuel infrastructure.	1. Coordination of disparate fleet modernisation schedules 2. Data collection from a range of operators 3. Focus on congestion relief to reduce harmful emissions
Affordability	1. 11.3% of Households are workless, in comparison to 13.9% national average 2. 15.6% of Thurrock residents have some limitation of their day-to-day activities due to poor health	1. Improve on relatively high employment levels 2. Opportunities for a mix of skill sets and educational levels available 3. Encourage positive effects of port expansions	1. Ensuring future infrastructure and development serves all residents

3. Focus Areas



3. Focus Areas - Introduction

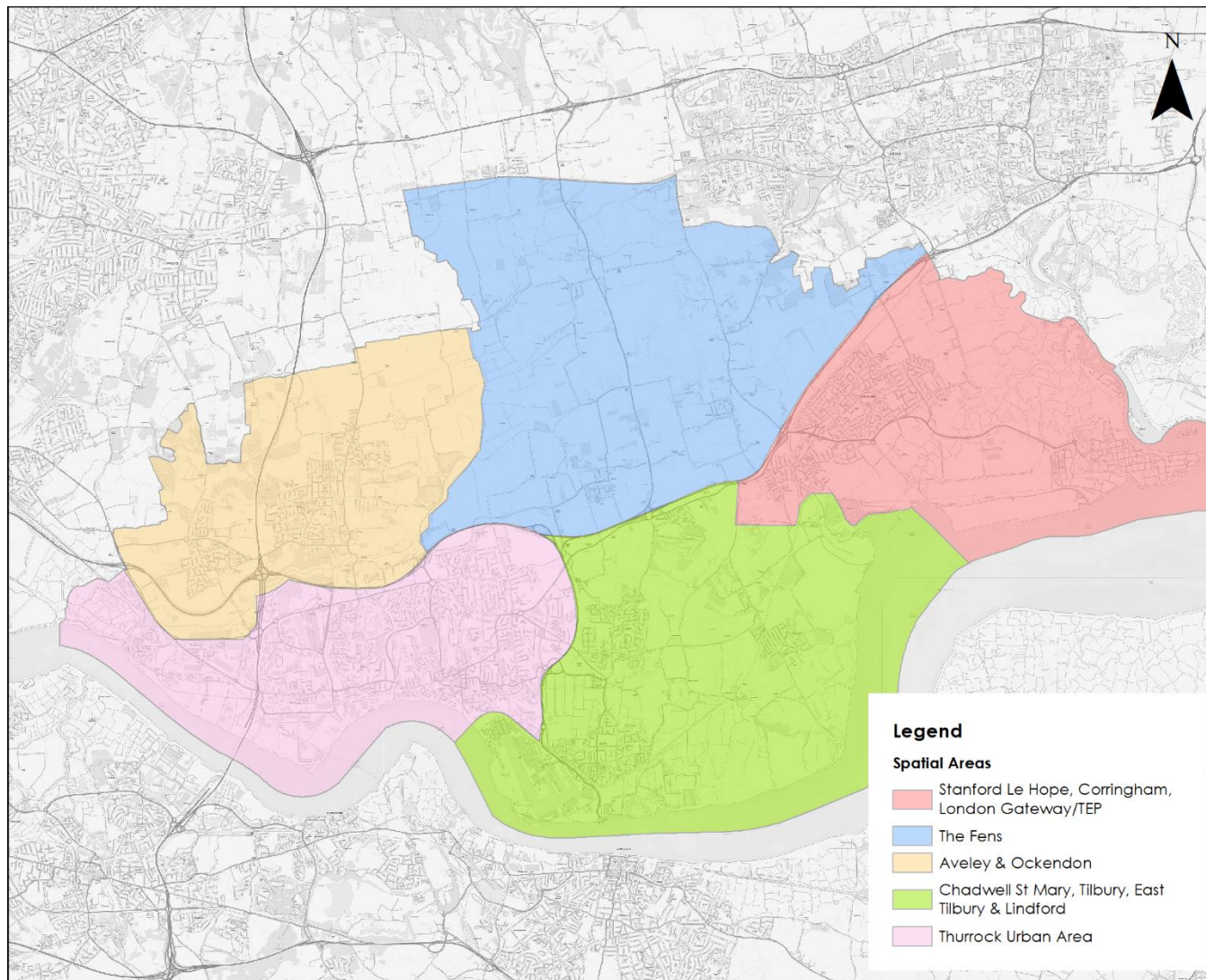
217. In order to understand the characteristics and needs of Thurrock more effectively, the following sections of this study examine in more detail the areas shown on the map.

218. The basis of the identification of these areas has been the areas which share key characteristics and best enable the development of the Local Plan and identify development and transport network opportunities for the benefit of residents and employers in Thurrock.

219. The five defined focus areas align with those adopted across the Local Plan research and evidence base.

220. The areas are:

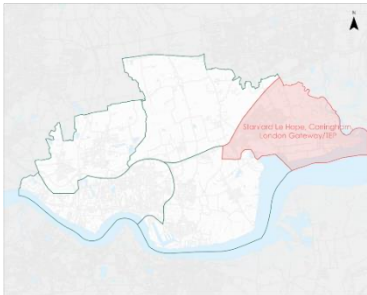
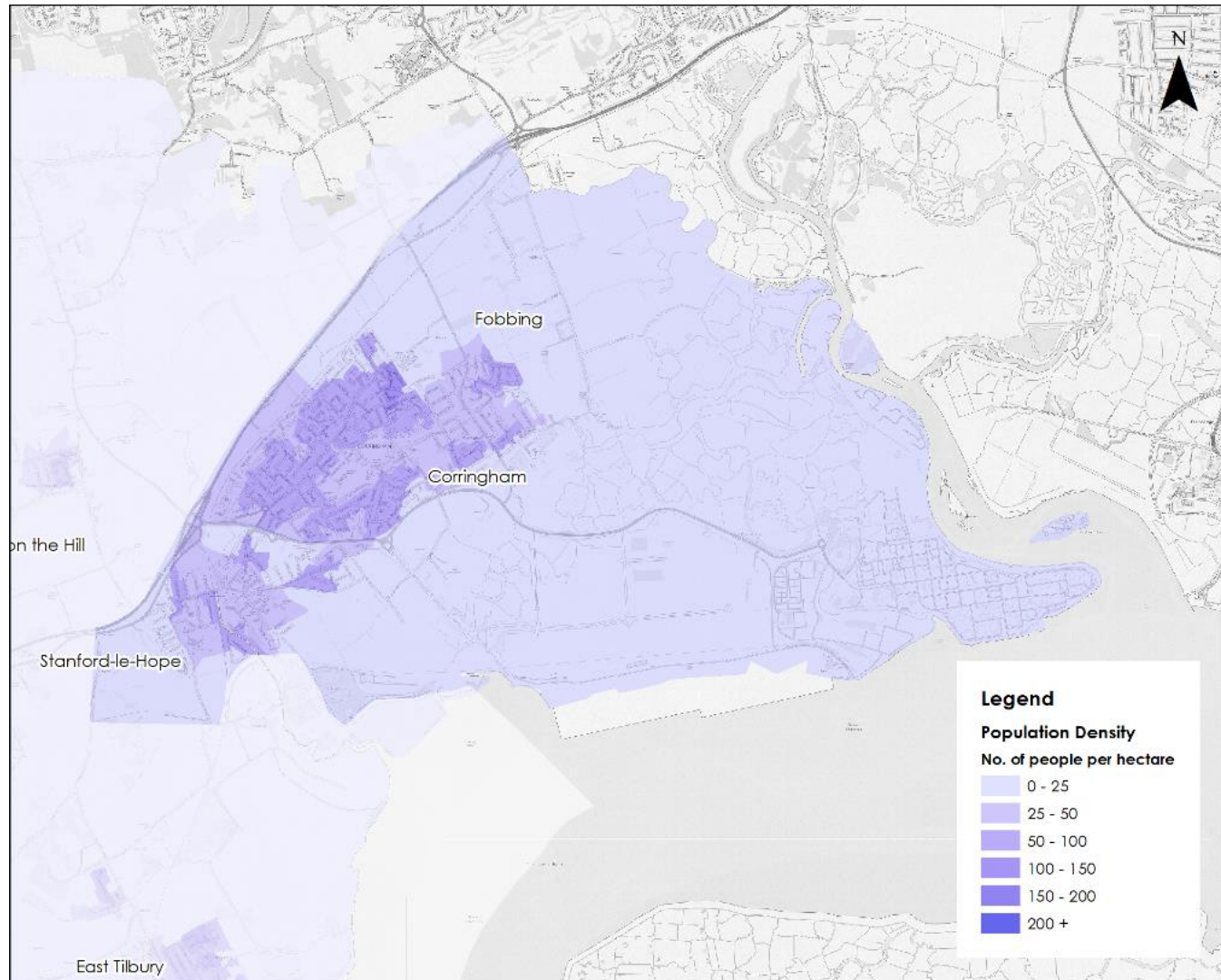
- i. Stanford-le-Hope, Corringham, London Gateway/Thames Enterprise Park
- ii. The Fens
- iii. Aveley and Ockendon
- iv. Chadwell St Mary, Tilbury, East Tilbury and Linford
- v. Thurrock Urban Area



4. Stanford-le-Hope, Corringham, London Gateway/Thames Enterprise Park

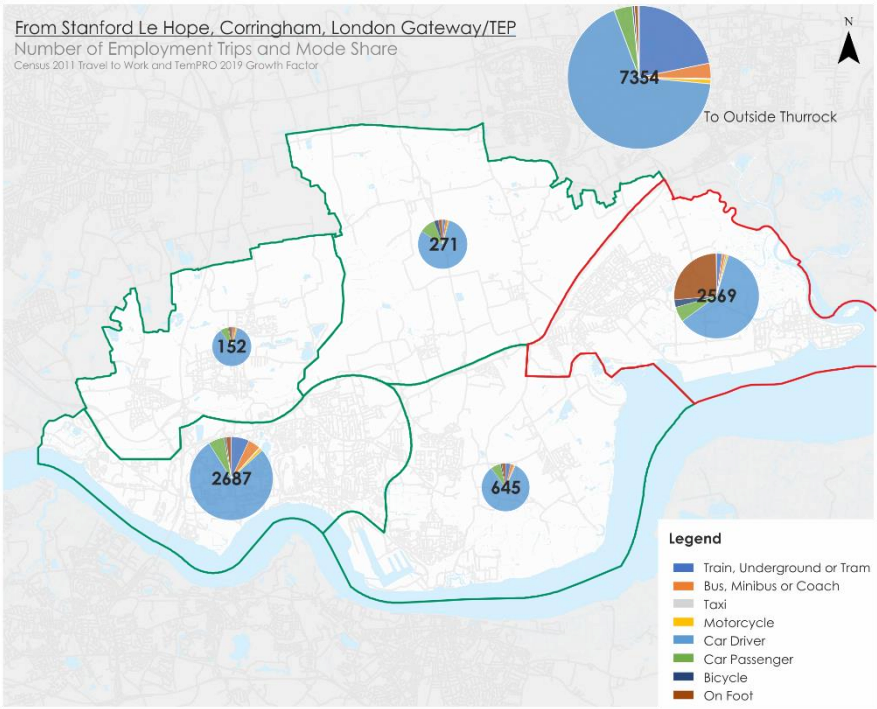
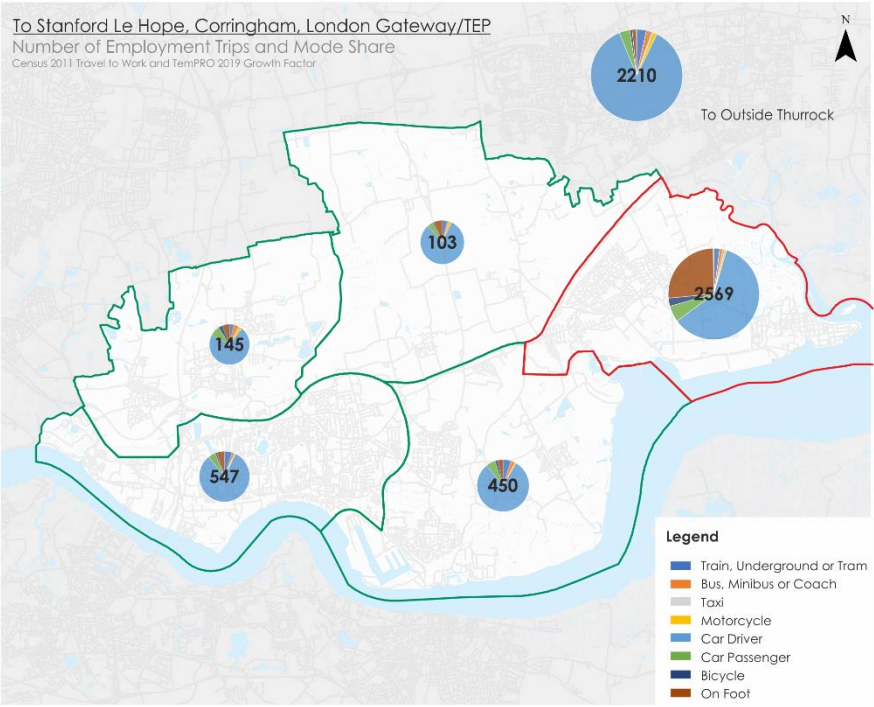


221. This area is located in the eastern area of Thurrock, bound by the A13 to the north, and the River Thames to the south. The area is made up of two towns: Stanford-le-Hope and Corringham, with the small village of Fobbing located to the north of the area.
222. London Gateway port is located to the south of the area, on the north bank of the River Thames.
223. The average population density of the area as a whole is 51 people per hectare. This density is higher in the towns of Stanford-le-Hope and Corringham, as illustrated on the map, with densities of over 100 people per hectare in some residential areas of Corringham.
224. The population density is considerably less outside of these towns, including in Fobbing and London Gateway.



4.2 Accessibility - Stanford-le-Hope, Corringham, London Gateway/TEP

225. The map below illustrates employment travel demand and mode share of trips to the east of Thurrock. The figures represent average weekday daily demand and are an estimate of 2019 demand from 2011 Travel to Work data.
226. This shows the majority of employment demand to the area comes from internal trips, with around 25% of these trips made by foot. Further trips come from outside of Thurrock, largely made up of private car trips (around 87%). Remaining employment trips are spread fairly evenly across Thurrock, with the largest proportion being car driver and passenger trips (around 70-80%).



227. The map above illustrates employment travel demand and mode share of trips from the east of Thurrock, with the figures showing estimated demands based on the same data.
228. This shows much employment demand from the east travels outside Thurrock, made up mostly of private car trips (around 70%), with 22% of trips using rail travel.
229. There is also significant travel to the Thurrock Urban Area, with 80% of people travelling to the area using private cars.

Travel by Active Modes and Public Transport

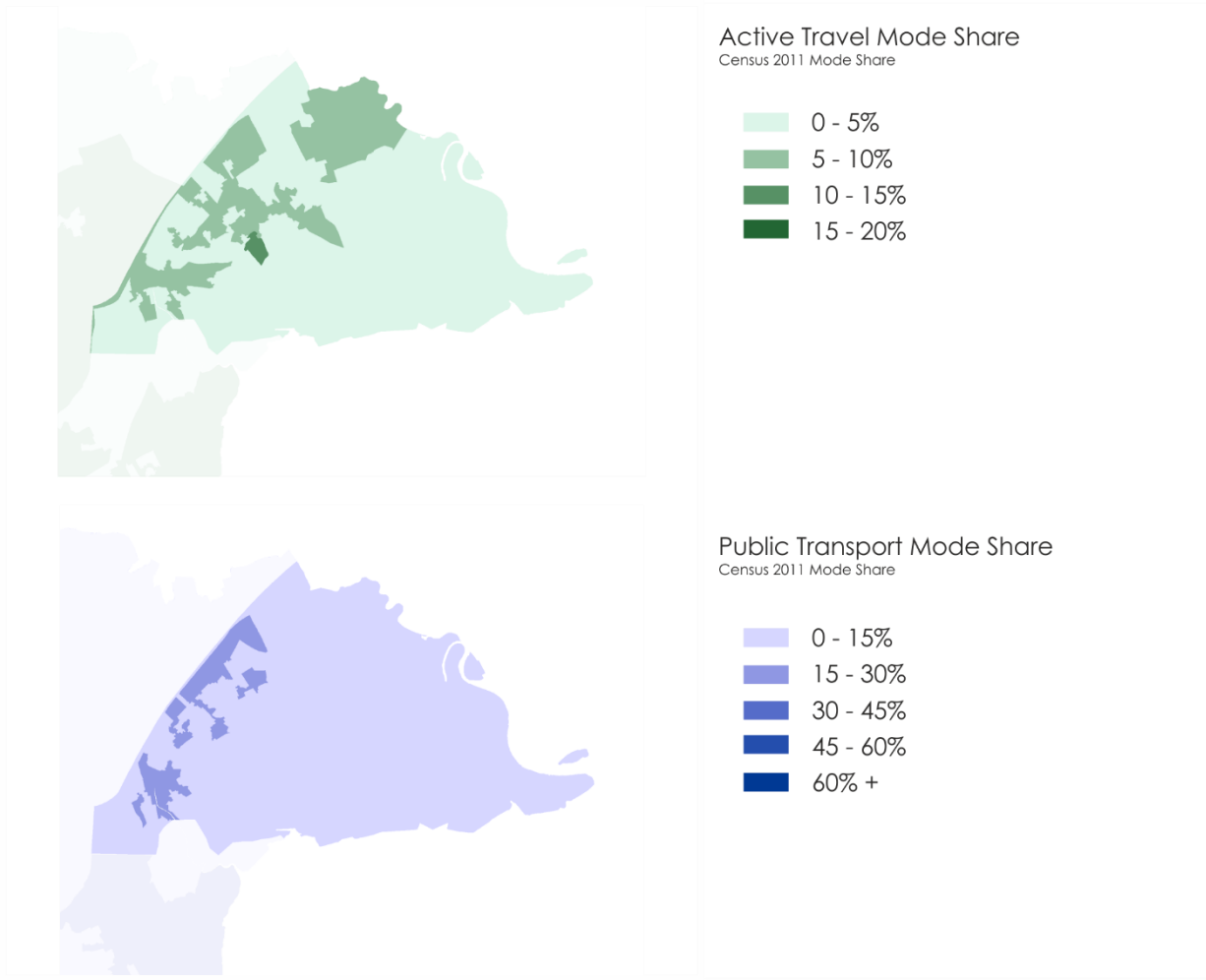
230. An analysis of mode share employment trip data (Census 2011) shows that, on average, 5% of the population in this area use active travel modes (walking and cycling) when travelling to work.

231. Although this is low overall, there are pockets of increased active travel users, most notably in areas of Corringham, were up to 11% of residents in this area use active travel modes for employment trips.

232. Public transport use for employment trips is low throughout majority of the area, with an average of 12% of the population using public transport as their primary more for travelling to work.

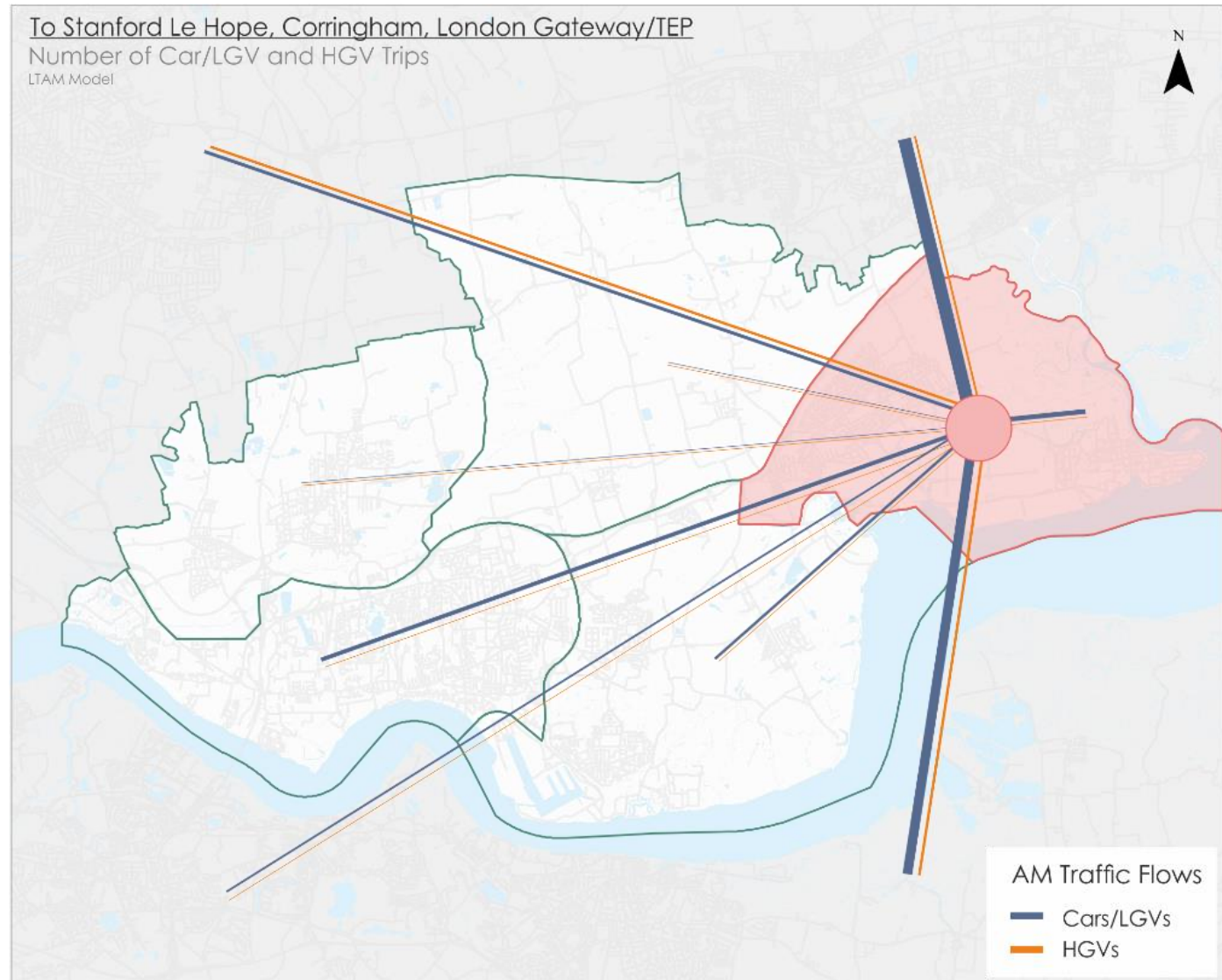
233. There are increases in public transport use in Stanford-le-Hope, particularly in areas surrounding Stanford-le-Hope railway station, with up to 30% of people in these locations using public transport for employment trips.

Stanford Le Hope, Corringham, London Gateway/TEP



HGV Movement

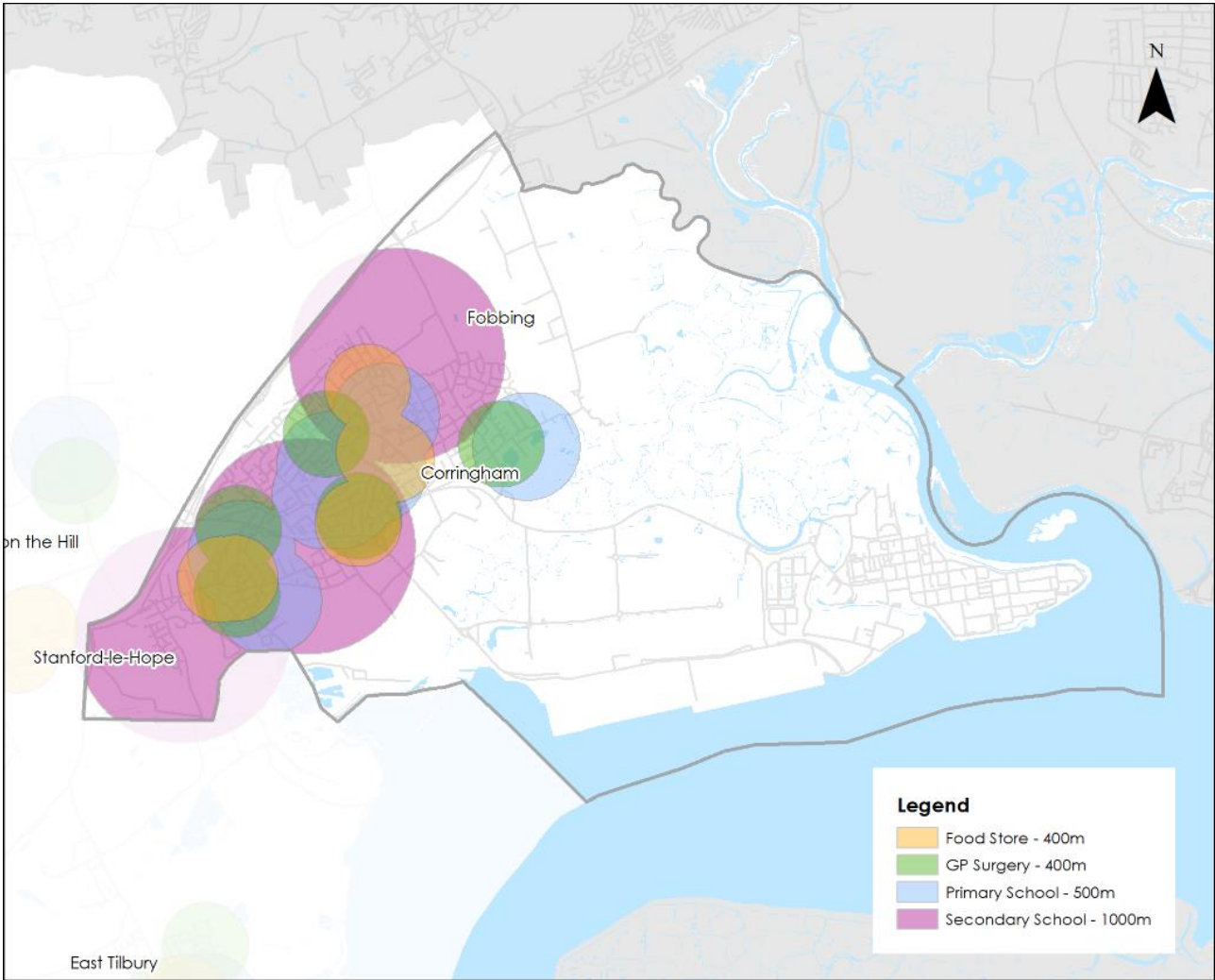
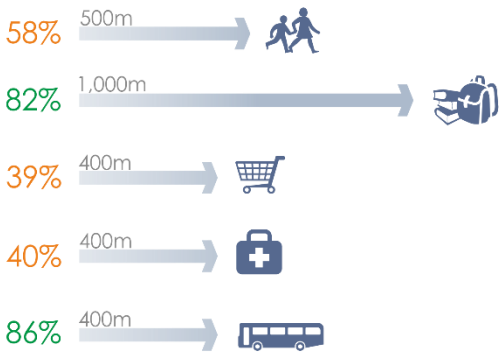
234. The Lower Thames Area Model cordon model has been used to analyse trips to and from the spatial areas within Thurrock and movement to and from outside of Thurrock in the north west, north east, south west and south east. The map shows the zones modelled and has been used to analyse HGV movement. It illustrates car/LGV travel and HGV travel to Stanford-le-Hope, Corringham, London Gateway/TEP. Travel to this area evenly spread from each of the internal zones. There is a significant proportion of travel to the area from outside of Thurrock, particularly from the north east and south east.
235. A total of 476 HGVs travel to the area in the AM peak hours, primarily from the south east and north west areas outside of Thurrock. This equates to 21% of all traffic travelling to the area.



Accessibility to Local Facilities

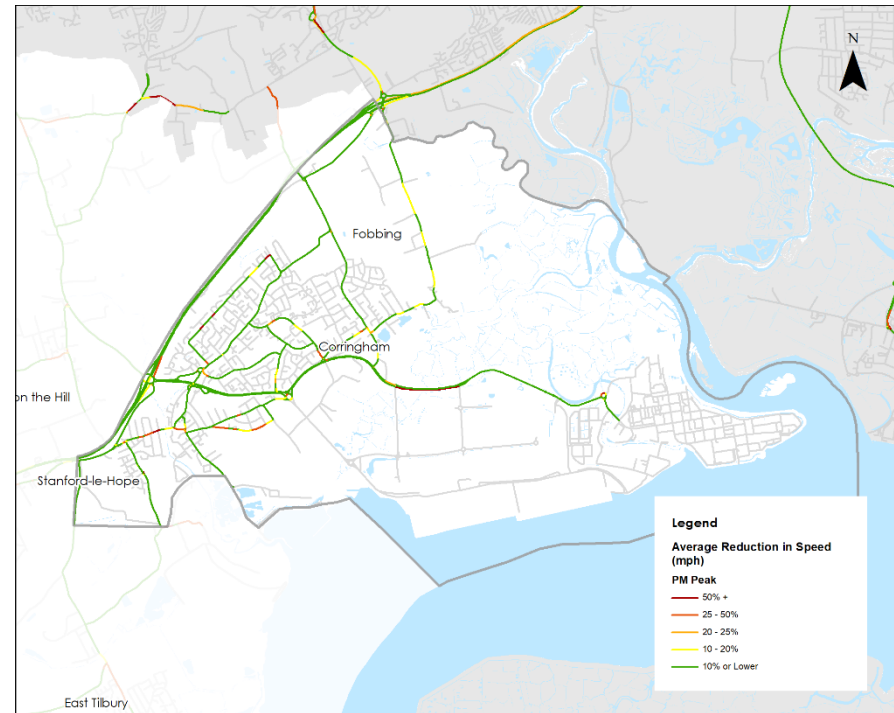
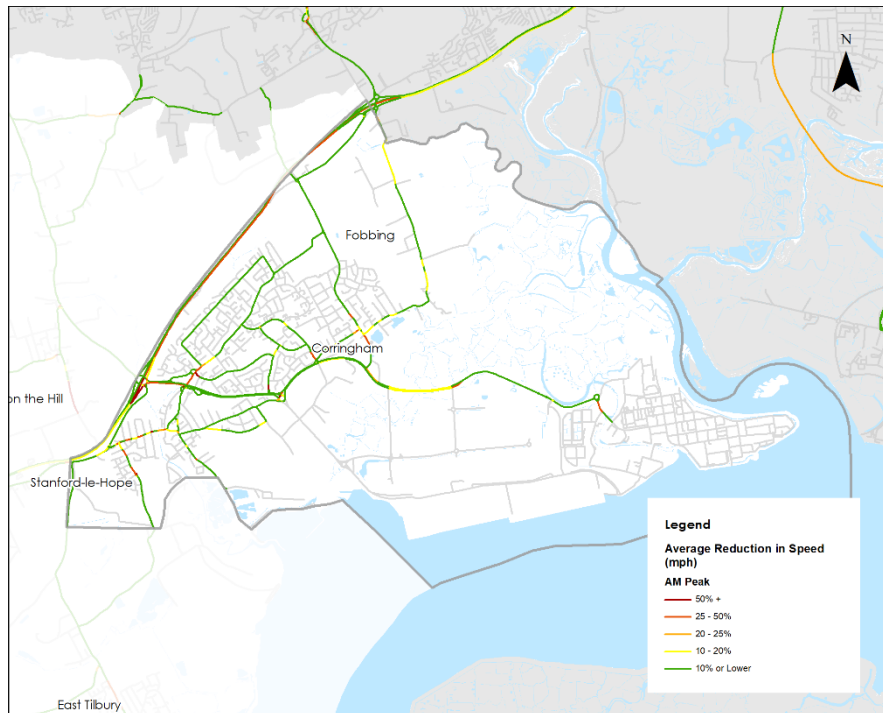
236. Stanford-le-Hope, Corringham, London Gateway/TEP has good walking accessibility to local bus stops across the area. Accessibility to secondary schools is also good, with 82% of the population in the area able to walk to a secondary school within 1,000m. These are located in the towns of Stanford-le-Hope and Corringham.
237. Accessibility to other local facilities are moderate but for relative small proportion of the urban areas, with primary schools, food shops and GP surgeries located around Stanford-le-Hope and Corringham, but few facilities located further east in Fobbing.

Accessibility to Local Facilities in Thurrock
Stanford Le Hope, Corringham, London Gateway/TEP



Average Delay – AM and PM Peak

238. Trafficmaster speed data has been provided by Thurrock Council to analyse the difference in speeds between interpeak hours and the AM and PM peak hours. A reduction in speeds in the peak hours would indicate delay on the road network, either due to volume of traffic or issues at junctions.
239. There is little reduction in speed across the majority of this area, with noticeable slower speeds along the A13 travelling westbound in the AM peak hour and at the A13 junction with the A1014 leading into Stanford-le-Hope.



240. Similarly in the PM peak hour, there is little reduction in speed across the area. There are some pockets of reduced speeds along the A1014 between Stanford-le-Hope and London Gateway, as well as slightly reduced speeds in areas between Corringham and Fobbing.
241. In contrast with the AM peak hour, speeds are closer to those during interpeak hours on the A13 heading in both directions, indicating little delay on those roads.

Key Transport Links

Road Network and Bus Services:

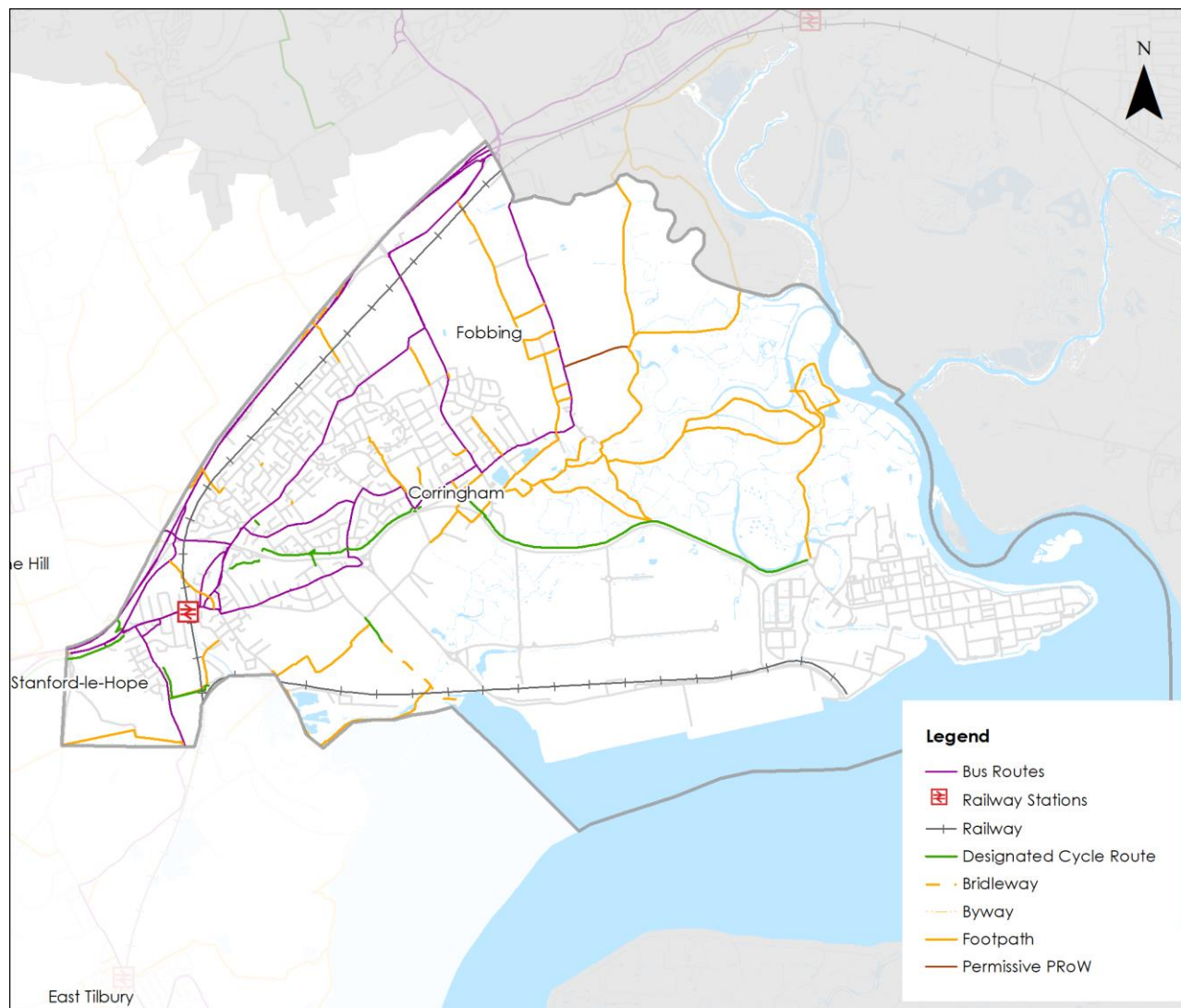
242. The A13 links to the A1014 into Stanford-le-Hope in the south west of the area, and to the A176 onto High Road into Fobbing.
243. The area is served well by frequent bus services, including the 5 bus services running every half an hour into Stanford-le-Hope and Corringham, and several less frequent bus services also providing routes through the area. No bus services run to London Gateway port.

Rail Services:

244. The Stanford-le-Hope railway station is located in the south west of the area, on the London, Tilbury and Southend railway. Services from this station provides direct routes to Pitsea to the west and East Tilbury and Tilbury to the south west.

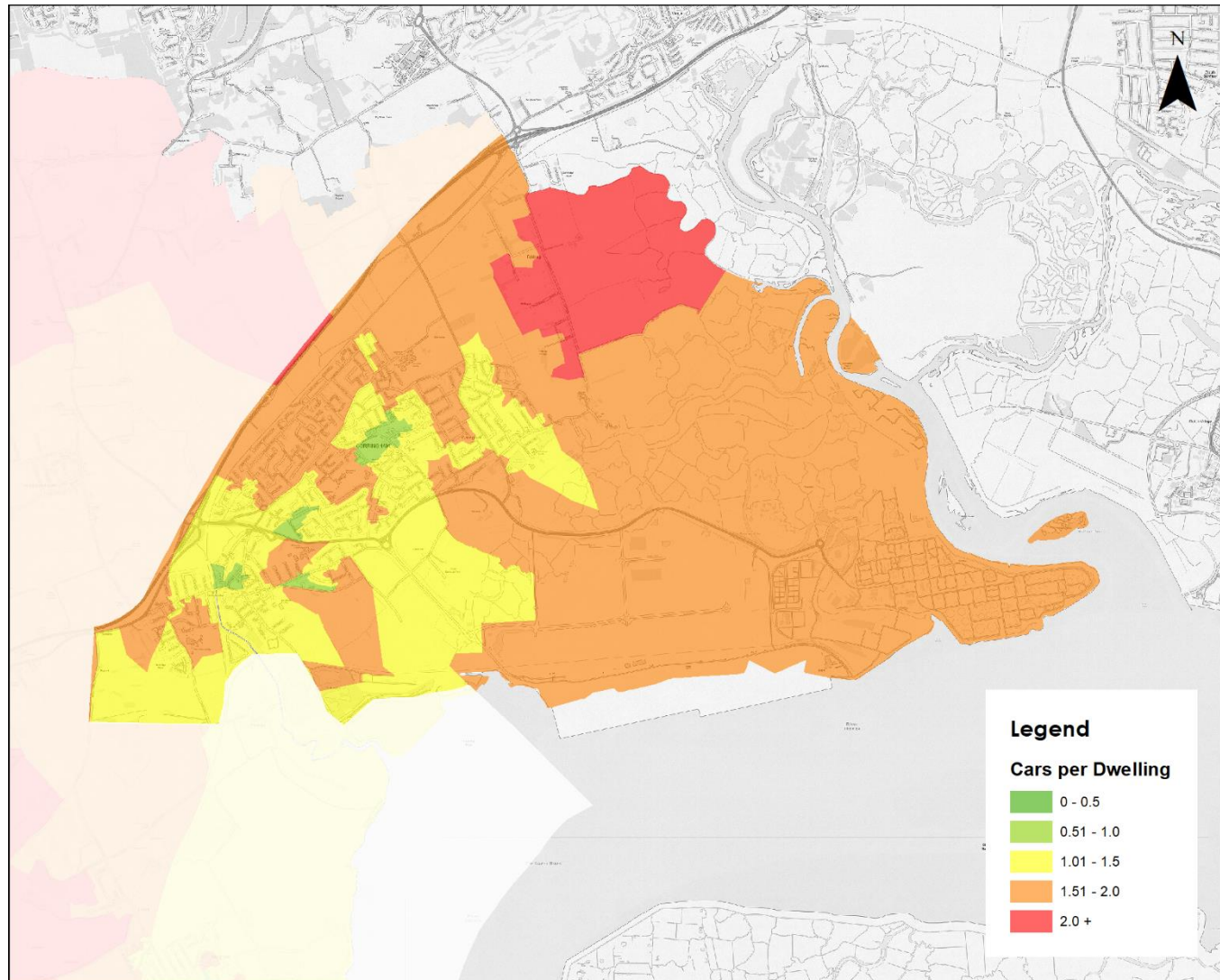
Walking and Cycling Infrastructure:

245. There is some dedicated cycle route provision linking Stanford-le-Hope to London Gateway port. There are no other dedicated cycle routes for travel to Corringham and Fobbing.
246. Public Rights of Ways, including bridleways and footpaths provide sustainable connections around Corringham and Fobbing, including rural walking routes around Fobbing marsh.



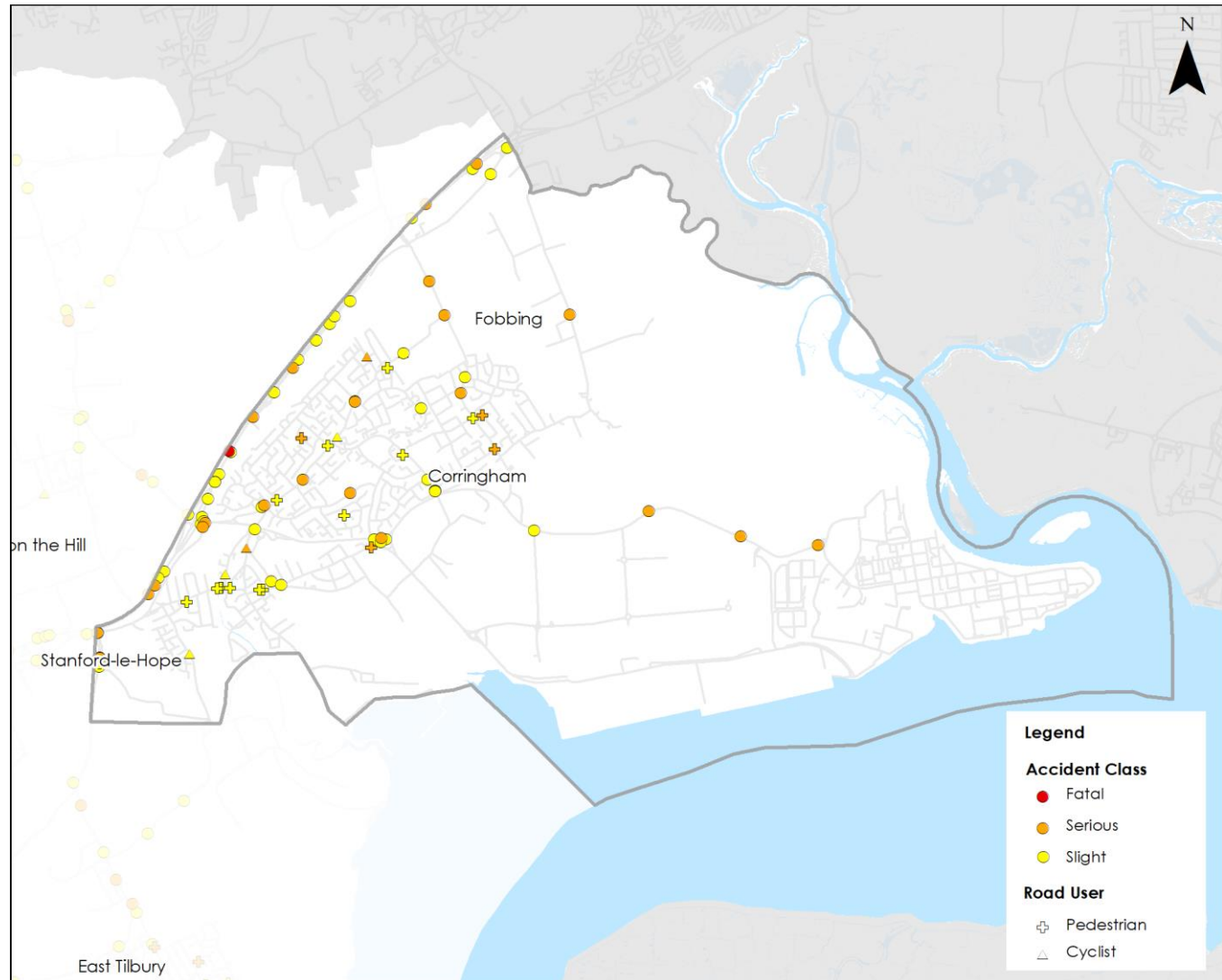
Car Ownership

247. Car ownership is mixed throughout Stanford-le-Hope, Corringham, London Gateway/TEP. Within the area car ownership is highest in Fobbing, and in areas nearby the A13 and London Gateway.
248. The number of cars per dwelling decreases in Stanford-le-Hope town and areas of Corringham, with car ownership lowest most notably surrounding Stanford-le-Hope railway station.



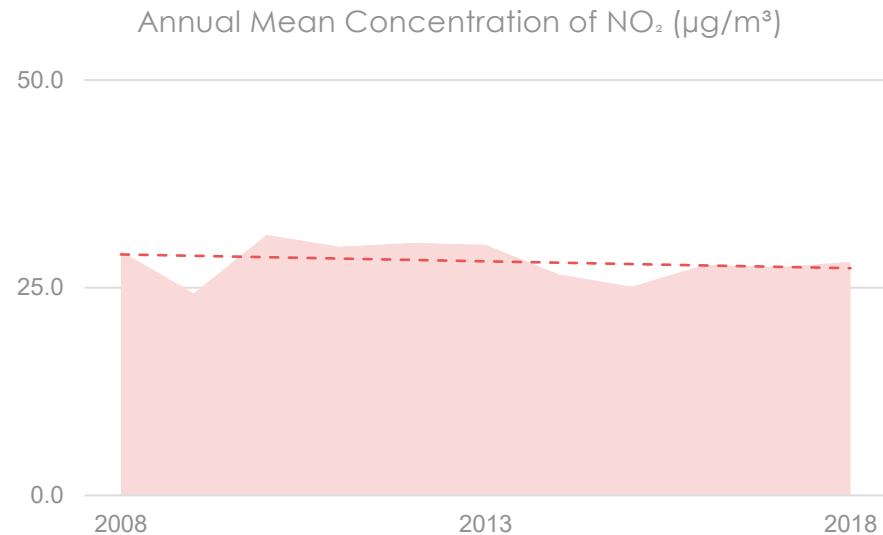
Accident Data Overview

249. This map shows slight, serious and fatal accidents recorded over a three year period in Stanford-le-Hope, Corringham, London Gateway/TEP, using data provided by Thurrock Council.
250. There was a total of 86 road traffic accidents across the area between 2017 and 2019, with 1 of these a fatal accident (1%), 27 serious (31%) and 58 slight accidents (67%).
251. A significant number of road traffic accidents in this area involved non-motorised users, with 6 involving cyclists (7%) and 17 involving pedestrians (20%). Many of these accidents are located in high residential areas.
252. One fatal accident was recorded in 2017, located on A13 north of the Stanford-le-Hope intersection, involving a private car and goods vehicle.



Air Quality Trends

253. There are no air quality management areas (AQMAs) located in Stanford-le-Hope, Corringham, London Gateway/TEP.
254. Air quality data for the area has been provided by Thurrock Council, taken from NO₂ diffusion tube sites across Thurrock. Data has been analysed between 2008 and 2018 to understand air quality trends over the ten year period*.
255. The data shows that the annual mean concentration of NO₂ remains relatively constant over time in this area, with an average of 28.2 µg/m³ over the ten year period. The national average mean concentration of NO₂ was 19.6 µg/m³, according to Ricardo Energy & Environment statistics provided by gov.uk.



*Not all diffusion sites gathered data every year, with some sites added in later years, providing a broader range of data across the area. As such, trends should be viewed as a whole over the 10-year period, not by a year-to-year basis.

Overview of deprivation, health, age & education

256. These maps show an overview of deprivation, health, age and education levels in Stanford-le-Hope, Corringham, London Gateway/TEP.

257. Deprivation – 25% of people are noted as deprived in more than one dimension, with deprivation highest in areas between Corringham and Fobbing.

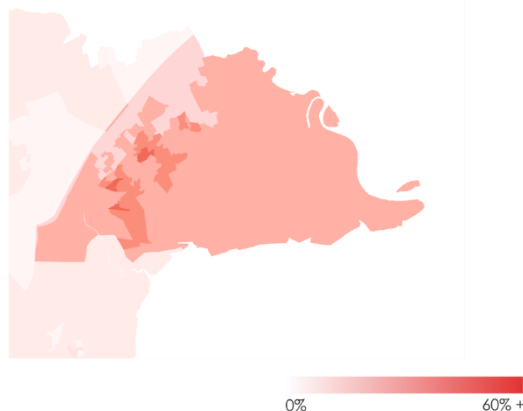
258. Health – health measures are average across the area, with a mean of 5% of the population in the area with bad or very bad health, with increases in areas of Corringham.

259. Age- There is an average of 17% of population in the area over 66. Similarly to other demographics, the over 66 population is higher in areas of Corringham.

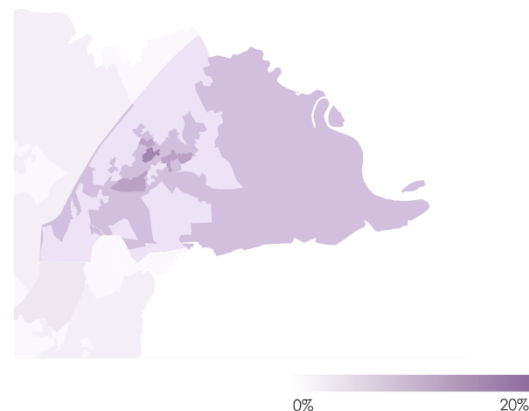
260. Education – 47% of the population in the area has level 1 or no qualifications, with small areas in and surrounding Corringham reaching between 60% and 70%.

Stanford Le Hope, Corringham, London Gateway/TEP

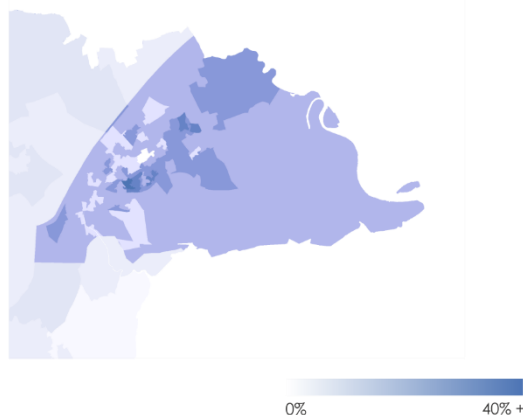
% of People Deprived in more than one Dimension
Census 2011



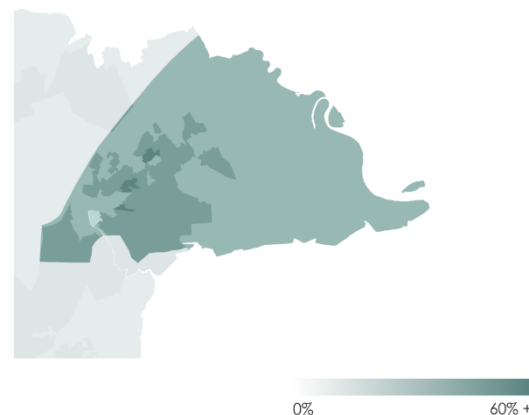
% of People with Bad or Very Bad Health
Census 2011



% of People aged 66 or Over
Census 2011



% of People with Level 1 or Fewer Qualifications
Census 2011



5. The Fens

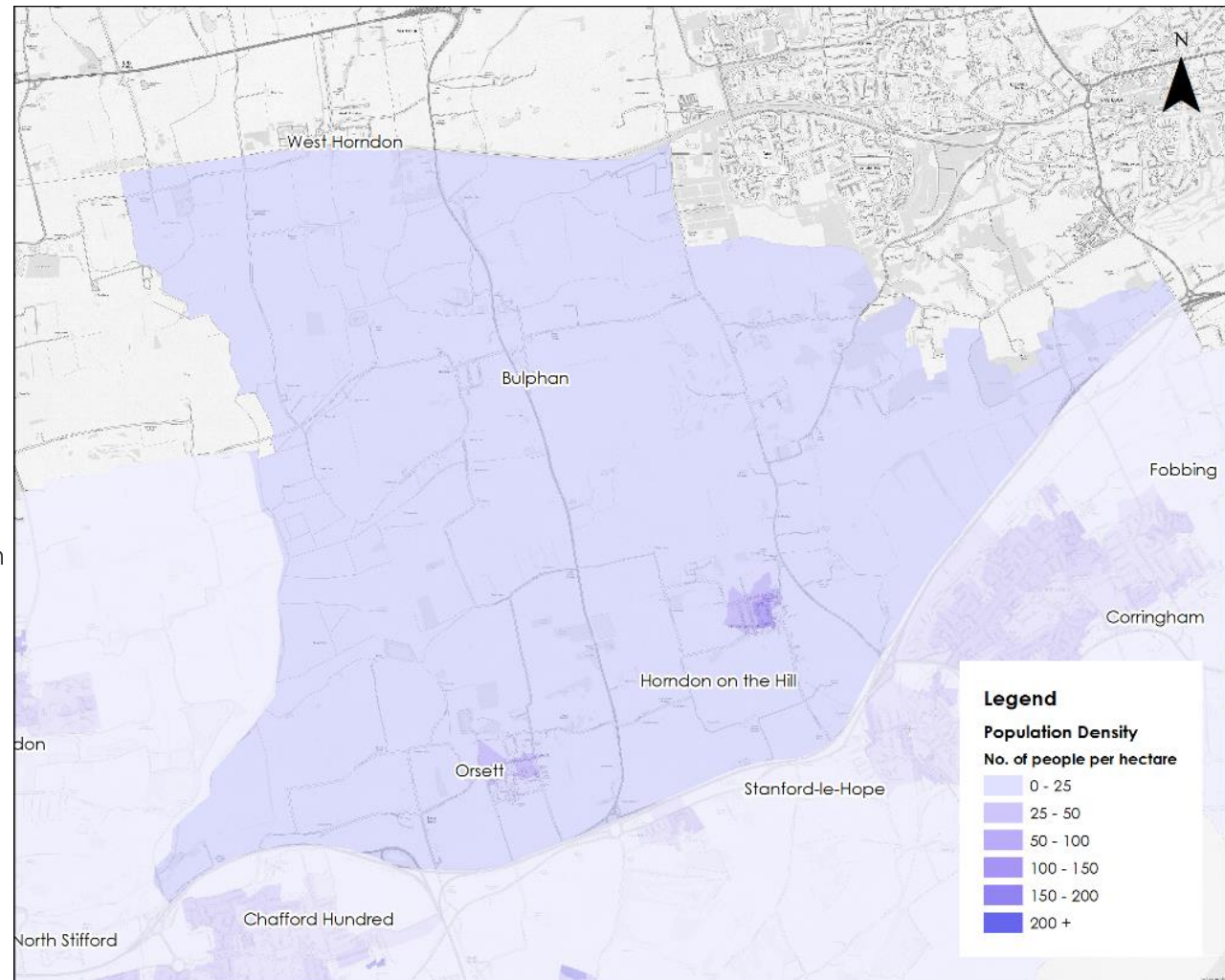
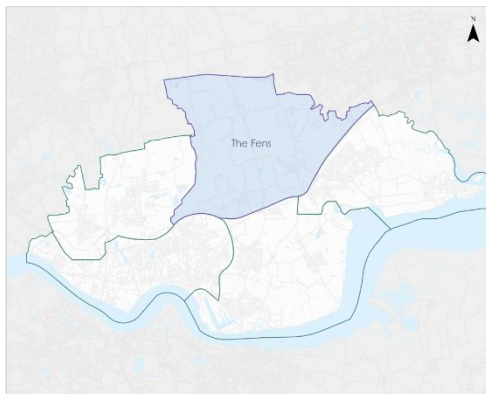


5.1 Introduction – The Fens

261. The area is bound by the A13 to the south, and the London, Tilbury and Southern Railway line to the north. The village of West Horndon lies immediately north of the area, just outside the boundary of Thurrock. The Fens area is predominantly rural, including the villages of Bulphan, Orsett and Horndon on the Hill.

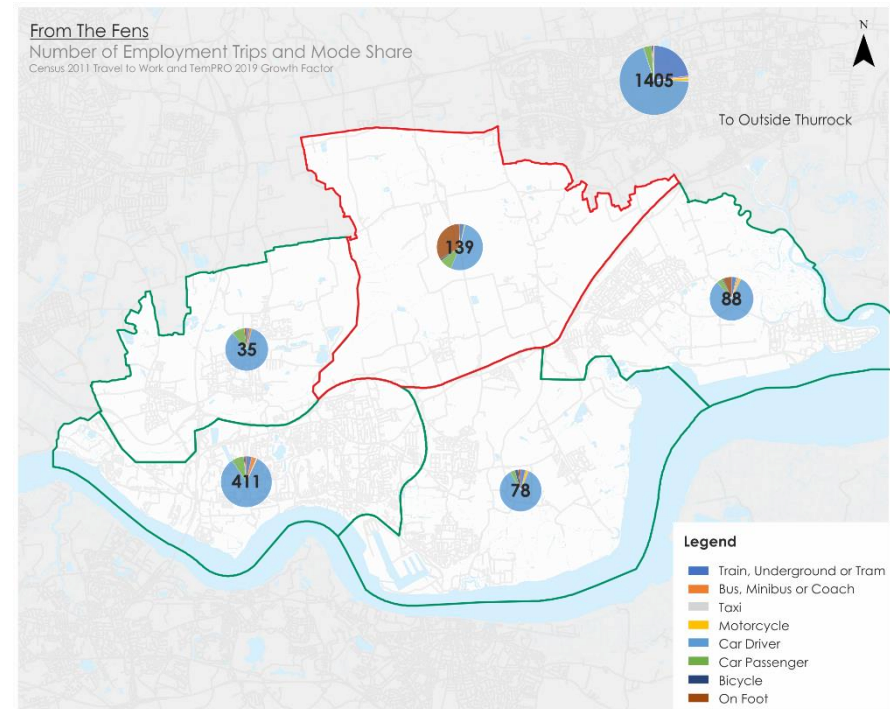
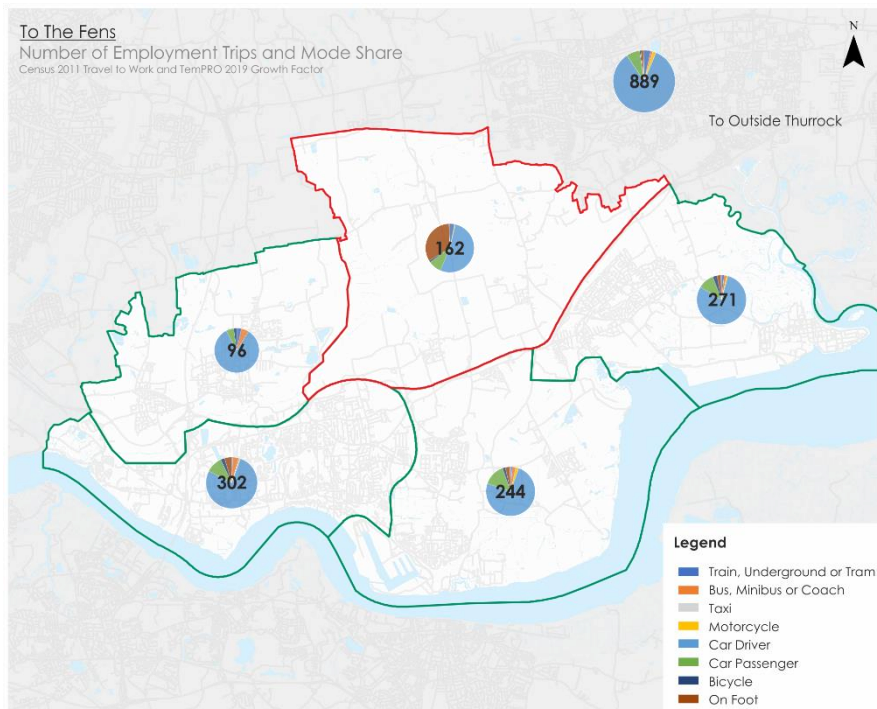
262. The map shows that The Fens has a low population density, with an average of 17 people per hectare across the whole area.

263. The population density increases in some of the settlements, including Horndon on the Hill (up to 59 people per hectare) and Orsett (up to 39 people per hectare), both located towards the south of The Fens.



Movement within The Fens

264. Movement To The Fens – The map below illustrates employment travel demand and mode share of trips to the north of Thurrock. The figures represent average weekday daily demand and are an estimate of 2019 demand from 2011 Travel to Work data.
265. This shows that much of the employment demand to The Fens comes from outside Thurrock, and is largely made up of private car trips (around 85%). Remaining employment trips are spread evenly across Thurrock, with the largest proportion being car driver and passenger trips (around 70-80%). Around 30% of internal trips are made by bus and 25% of external trips are made by rail.



266. Movement From The Fens – the map above illustrates employment travel demand and mode share of trips from the north of Thurrock, with the figures showing estimated demands based on the same data.
267. This shows that much of the employment demand from the north travels outside Thurrock and is largely made up of private car trips (around 70%). Remaining employment trips are spread evenly across Thurrock, with the largest proportion being car driver and passenger trips (around 80-90%).

Travel by Active Modes and Public Transport

268. An analysis of mode share employment trip data (Census 2011) shows that, on average, 4% of the population in The Fens use active travel modes (walking and cycling) when travelling to work.

269. There is an increase in active travel users further south of the area (around 6% of active travel users), surrounding Horndon on the Hill and Orsett when compared with the north.

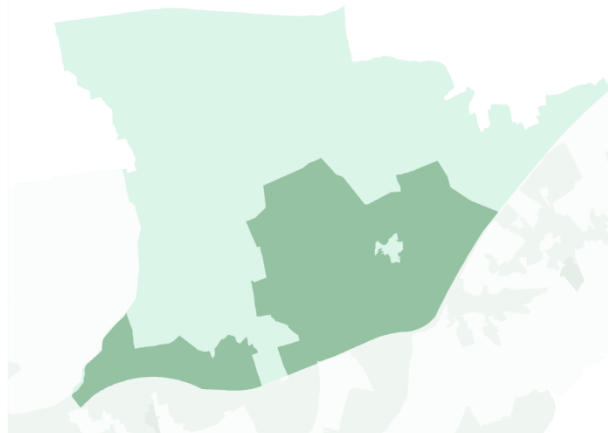
270. Public transport use for employment trips is predominantly low throughout the whole area, with an average of 12% of the population in the area using public transport as their primary mode for travelling to work.

271. The proportion of public transport use is slight higher in Bulphan and Orsett

The Fens

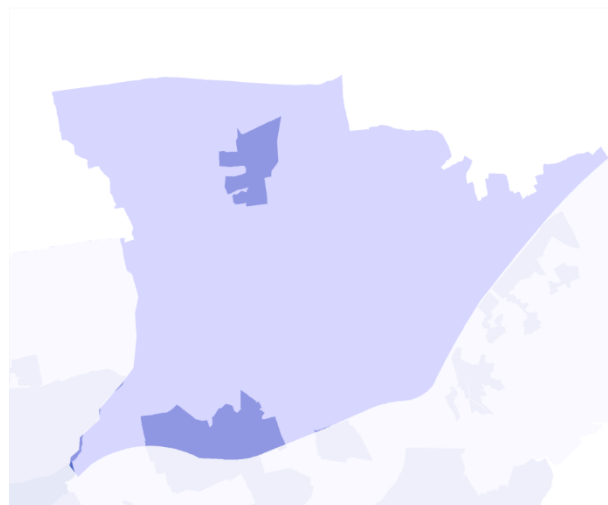
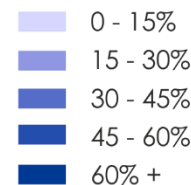
Active Travel Mode Share

Census 2011 Mode Share



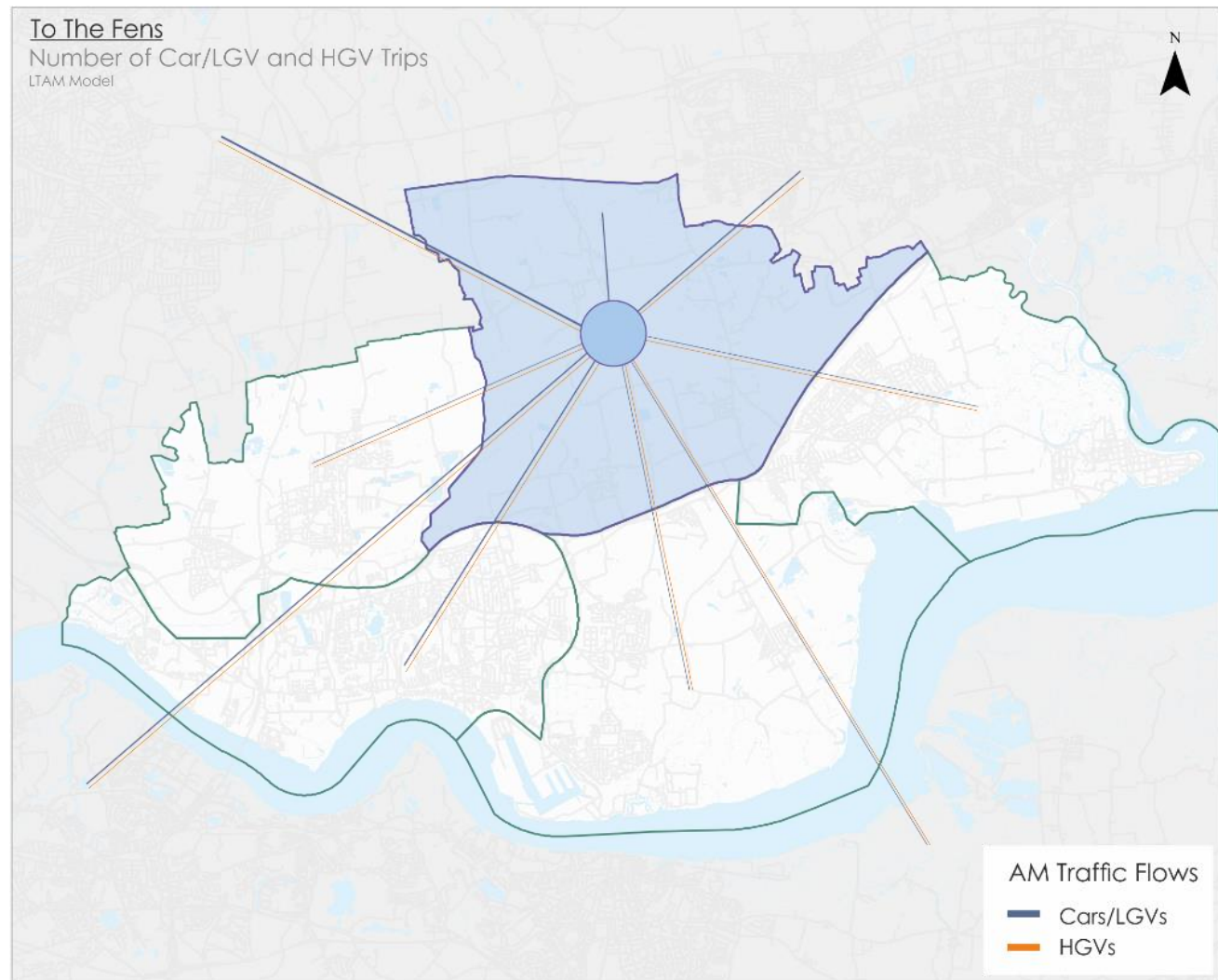
Public Transport Mode Share

Census 2011 Mode Share



HGV Movement

272. The Lower Thames Area Model cordon model has been used to analyse trips to and from the spatial areas within Thurrock and movement to and from outside of Thurrock in the north west, north east, south west and south east. This map shows the zones modelled and has been used to analyse HGV movement within The Fens.
273. The map illustrates car/LGV travel and HGV travel to The Fens. Travel to The Fens is evenly spread from each of the zones, with a slight increase in travel from the north west of Thurrock to The Fens.
274. There is very little HGV movement to the area, with a total of 67 HGVs travelling to the area in the AM peak hours. This equates to 13% of all traffic travelling to the area.



Accessibility to Local Facilities

275.

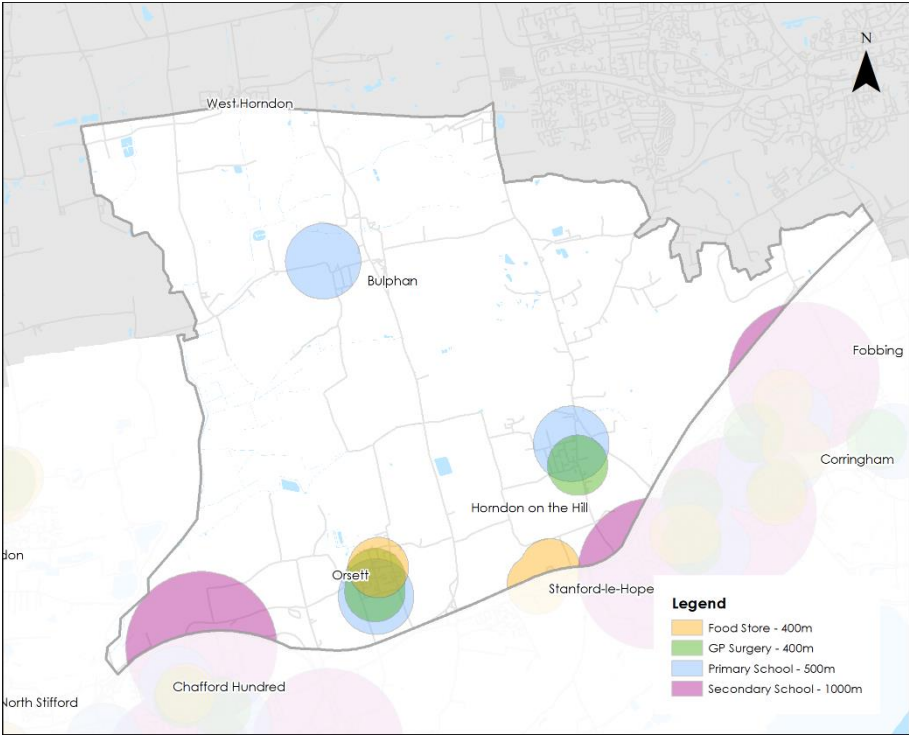
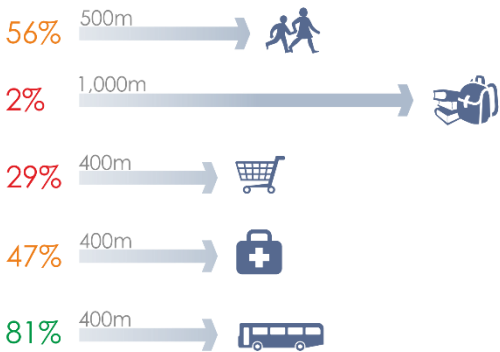
The Fens has good walking accessibility to local bus stops, which are located within and nearby the settlements of Horndon on the Hill, Orsett and Bulphan. Accessibility to GP surgeries is considered average, with surgeries located in Horndon on the Hill and a surgery and Orsett Hospital located in Orsett.
276.

Similarly, there are few primary schools in The Fens, with one located in each settlement. 56% of residents in this area can walk to a primary school within 500m.
277.

Accessibility to food stores and secondary schools however is very poor, with only 29% able to walk to a food store within 400m, and 2% able to walk to a secondary school within 1,000m.
278.

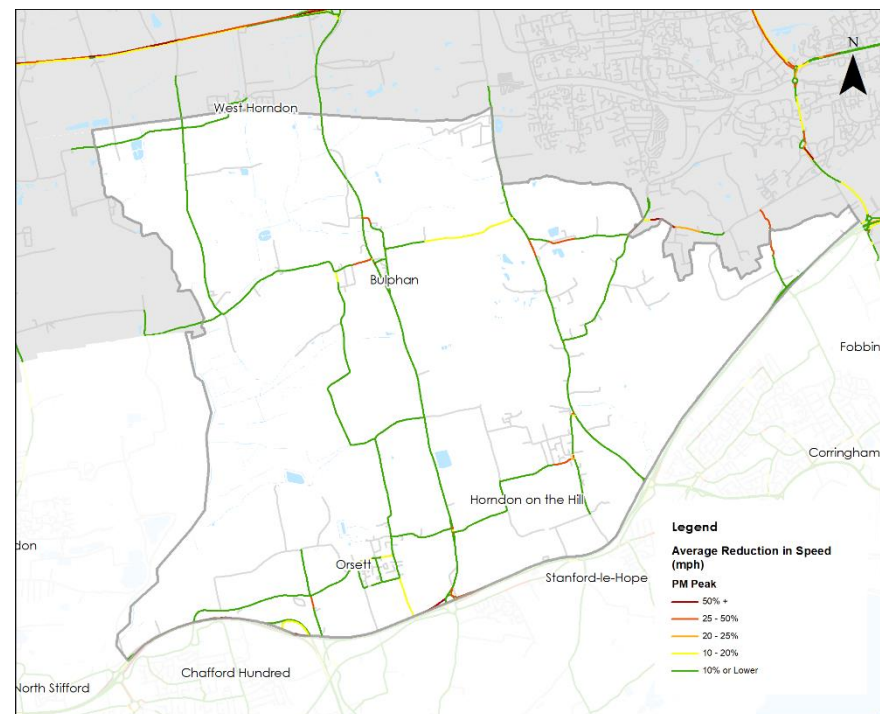
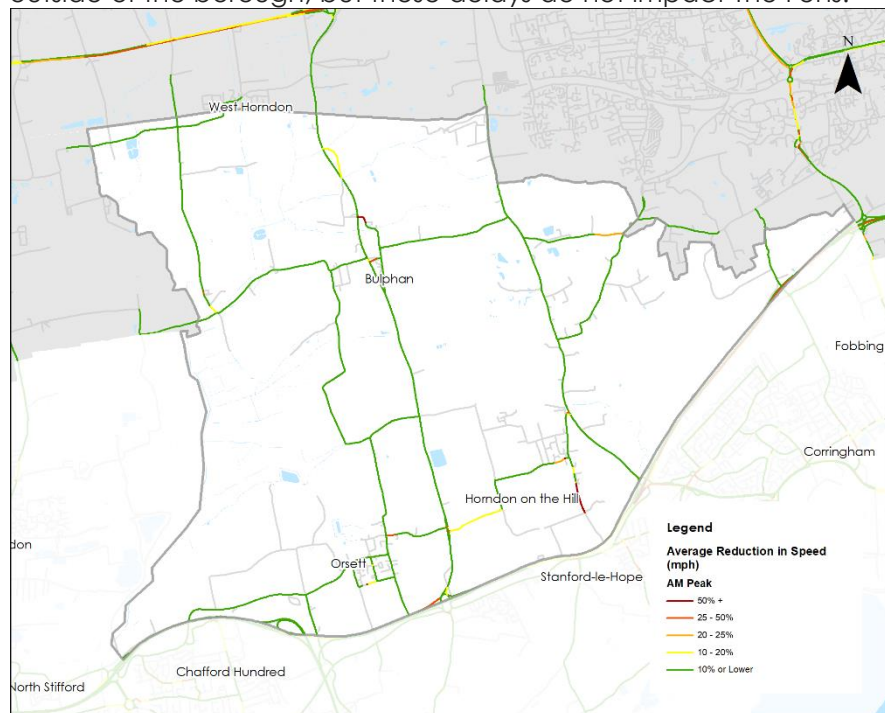
The nearest secondary schools are located south of the A13, with limited number of food stores located to the very south of the Fens.

Accessibility to Local Facilities in Thurrock The Fens



Average Delay – AM and PM Peak

279. Trafficmaster speed data has been provided by Thurrock Council to analyse the difference in speeds between interpeak hours and the AM and PM peak hours. A reduction in speeds in the peak hours would indicate delay on the road network, either due to volume of traffic or issues at junctions.
280. There is little reduction in speed across the area, albeit with some slower speeds towards the A128 (Orsett Cock) junction with the A13 to the south.
281. Lower speeds are also noticeable on the Southend Arterial Road outside of the borough, but these delays do not impact The Fens.



282. Similarly in the PM peak hour, there is little reduction in speed across the area, again with some slower speeds towards the A128 (Orsett Cock) junction with the A13 to the south.
283. As in the AM peak hour, lower speeds are noticeable on the Southend Arterial Road outside of the borough, but these delays do not impact the road network in The Fens.

Key Transport Links

Road Network and Bus Services:

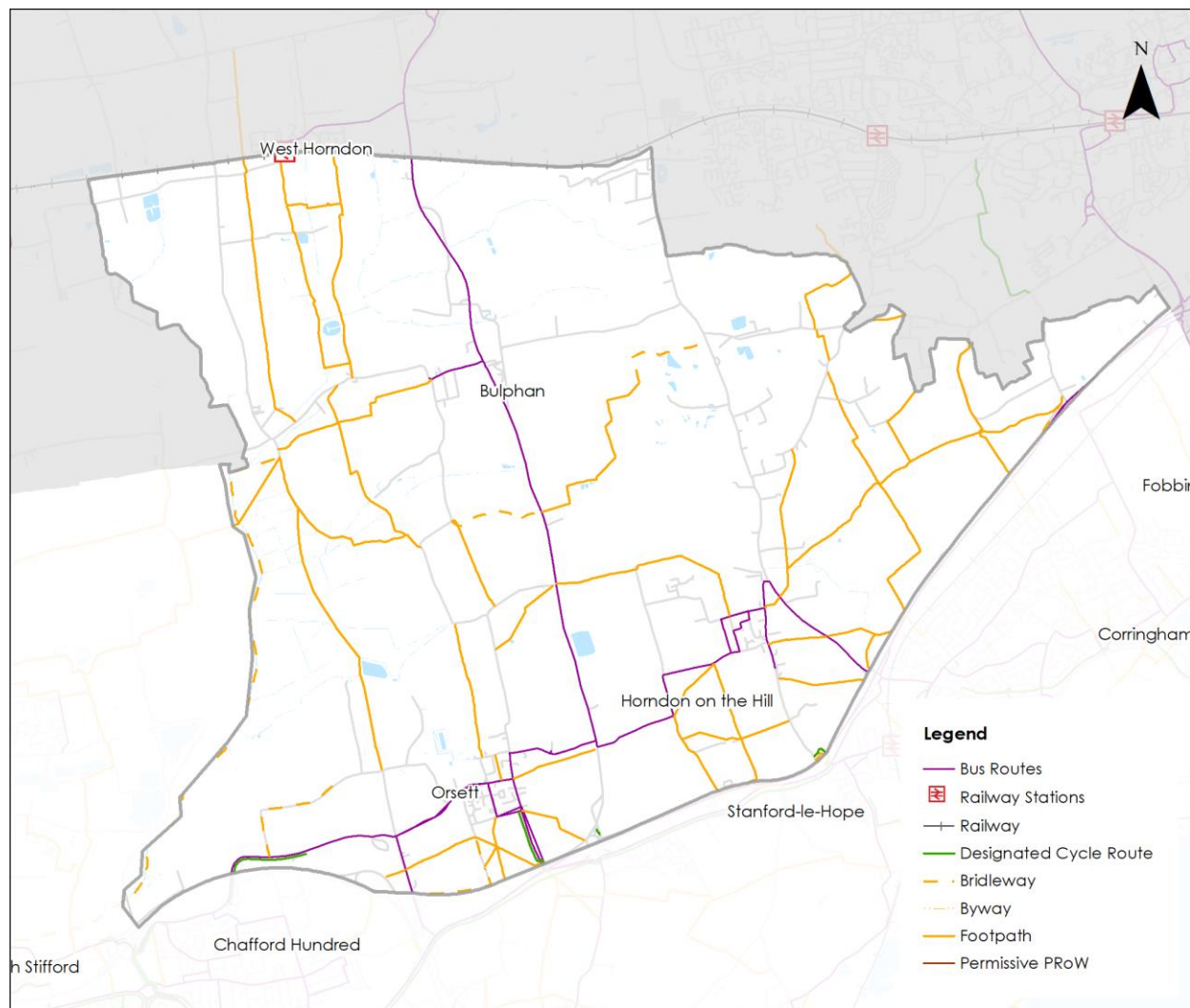
284. The A128 joins the A13 just south east of Orsett, and runs north past Bulphan towards West Horndon. This route is used by the number 265 bus service travelling north south between Grays and West Horndon. This is a limited service, with buses running 2-3 times a day.
285. The number 11 bus runs once every two hours, travelling east west from Purfleet to Basildon, through Horndon on the Hill and Orsett in The Fens.
286. Further buses serve Orsett, including the 5A/5C (twice an hour), and the 100 bus service (once an hour).

Rail Services:

287. There is a railway station at West Horndon (just outside Thurrock borough) near to Horndon Industrial Park. This is part of the London, Tilbury and Southend Railway, travelling towards Basildon to the east and Upminster to the west. No direct rail links are provided for patrons travelling south further into Thurrock, instead requiring a change at Upminster Railway Station.

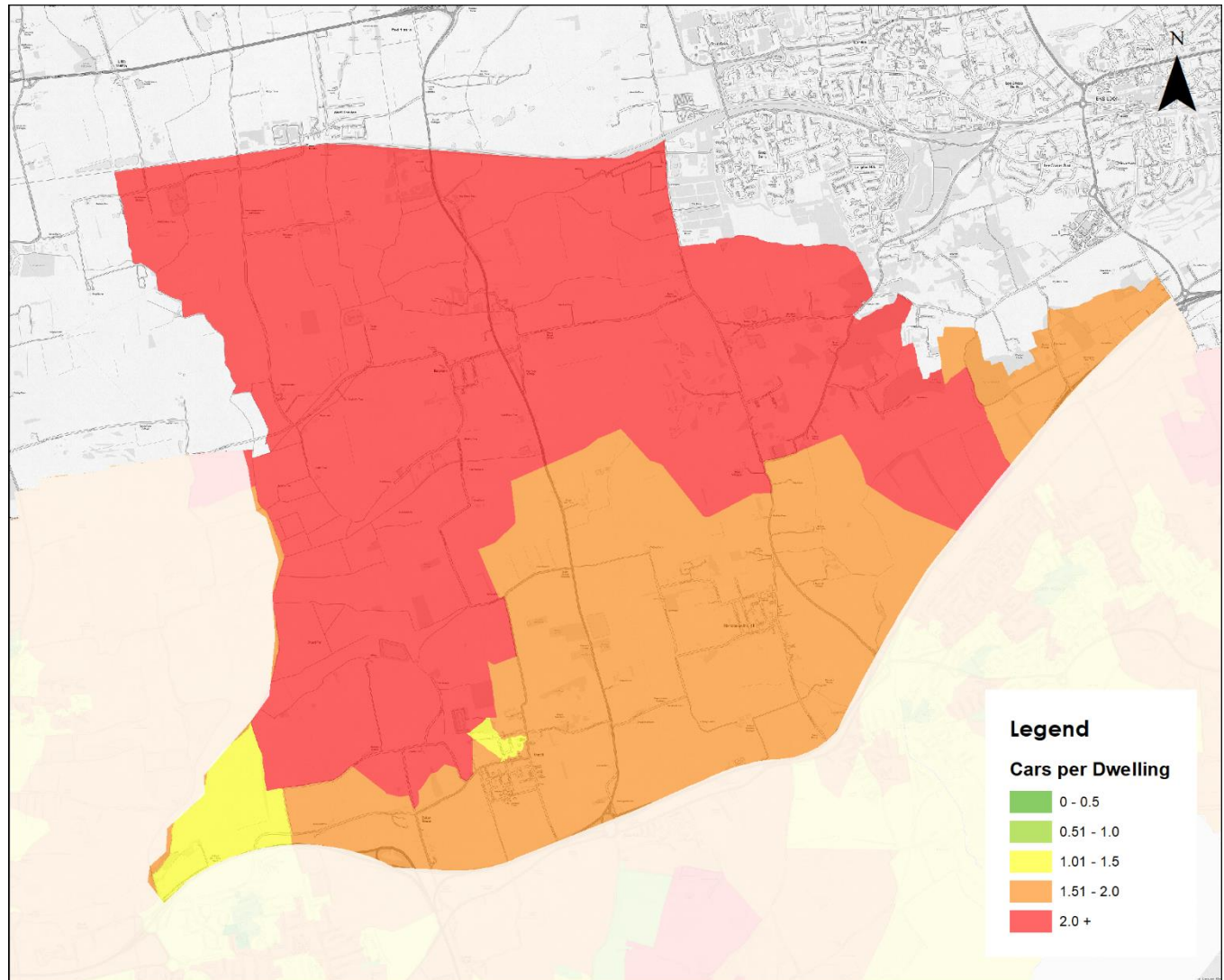
Walking and Cycling Infrastructure:

288. There is no dedicated cycle infrastructure in The Fens, however there are several Public Rights of Way, including bridleways and footpaths providing sustainable connections between the villages and surrounding areas. These routes are primarily through rural land and fields.



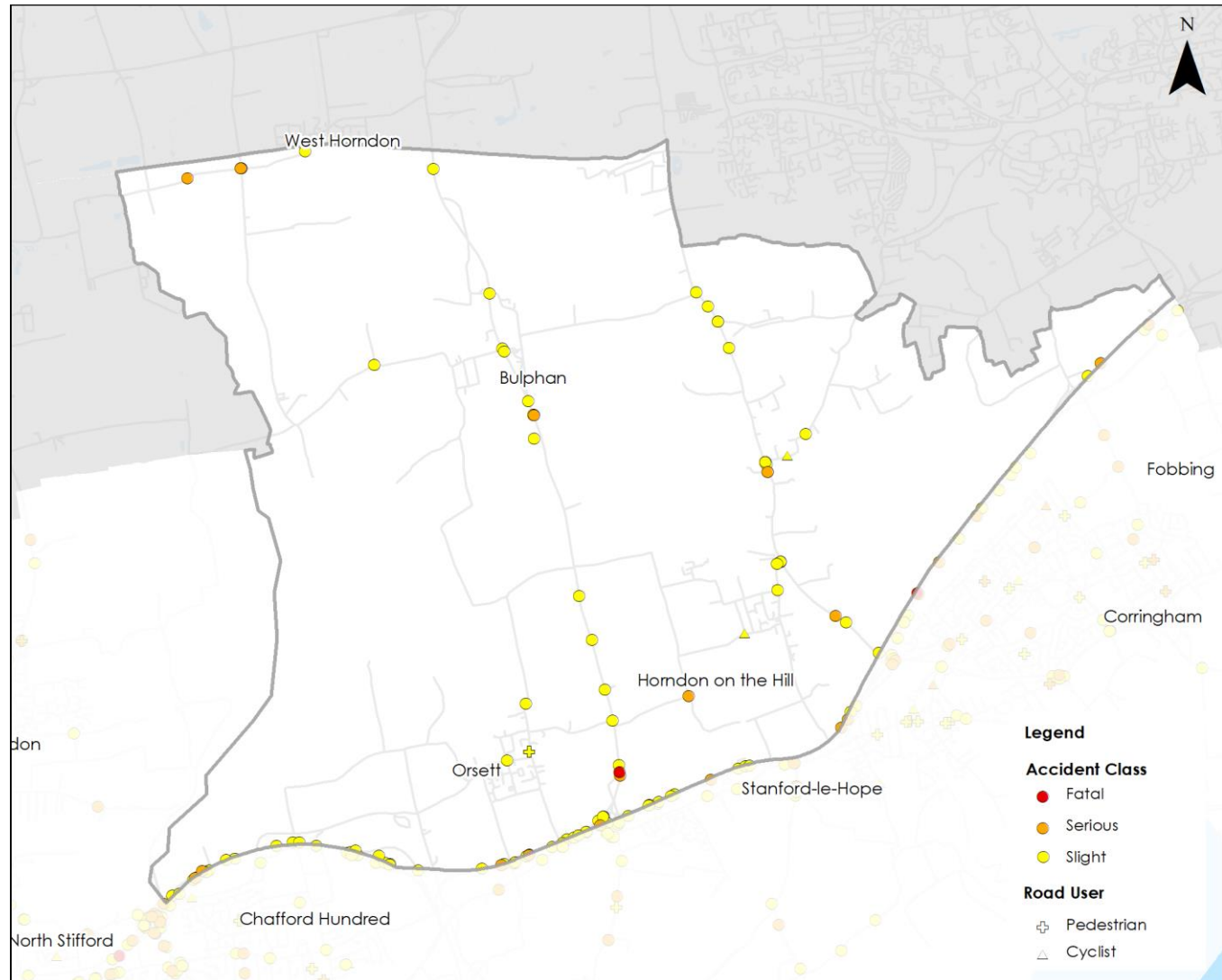
Car Ownership

289. Car ownership is high throughout the majority of The Fens, with two or more cars per dwelling in the northern areas.
290. The number of cars per dwelling decreases further south of The Fens, with 1 – 1.5 cars per dwelling as residents live closer to urban areas and increased public transport infrastructure.



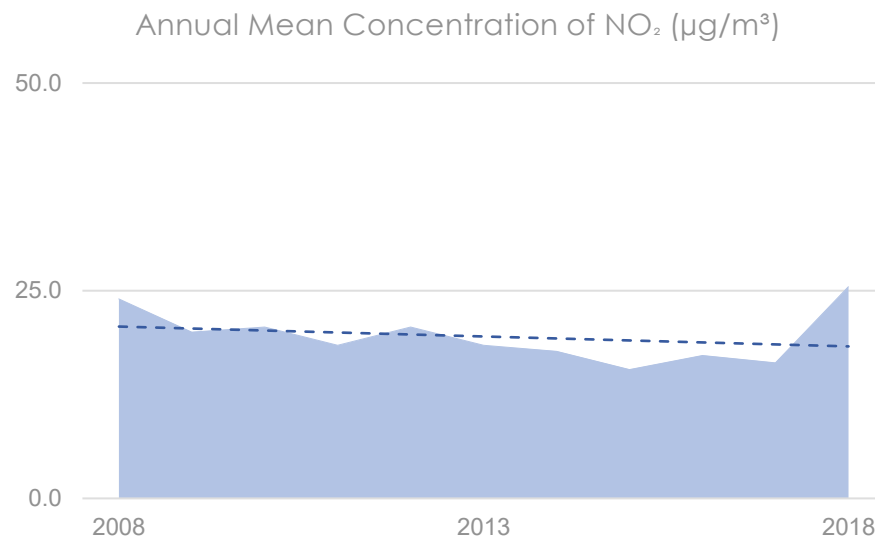
Accident Data Overview

291. This map shows slight, serious and fatal accidents recorded over a three year period in The Fens, using data provided by Thurrock Council.
292. There was a total of 63 road traffic accidents across The Fens between 2017 and 2019, with 1 of these a fatal accident (2%), 10 serious (16%) and 52 slight accidents (83%).
293. Road traffic accidents in The Fens primarily involved car users. Vulnerable road users were involved in three accidents, with all three involving cyclists and one involving both a pedestrian and a cyclist.
294. Accidents were primarily located on key road links such as the A128 and Lower Dunton Road.
295. One fatal accident was recorded in 2017, located on A128 near to the A13.



Air Quality Trends

296. There are no air quality management areas (AQMAs) located in The Fens.
297. Air quality data for this area has been provided by Thurrock Council, taken from NO₂ diffusion tube sites across Thurrock. Data has been analysed between 2008 and 2018 to understand air quality trends over the ten year period*.
298. In The Fens, the data shows that the annual mean concentration of NO₂ remains relatively constant over time, with an average of 19.5 µg/m³ over the ten year period. The national average mean concentration of NO₂ was 19.6 µg/m³, according to Ricardo Energy & Environment statistics provided by gov.uk.



*Not all diffusion sites gathered data every year, with some sites added in later years, providing a broader range of data across the area. As such, trends should be viewed as a whole over the 10-year period, not by a year-to-year basis.

Overview of deprivation, health, age & education

299. These maps show an overview of deprivation, health, age and education levels in The Fens.

300. Deprivation – 18% of people are noted as deprived in more than one dimension and 3% deprived in 3 or 4 dimensions. Deprivation is lower to the south of the area.

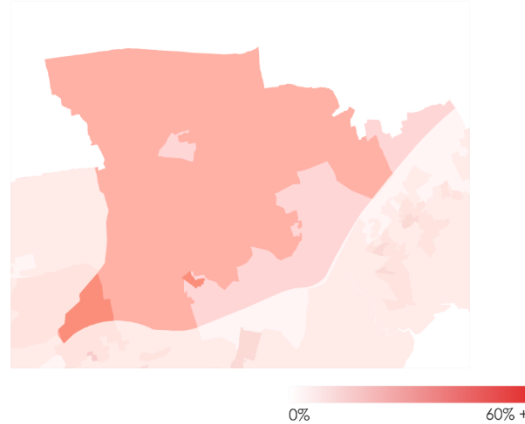
301. Health – health measures are average across the area, with a mean of 4% of the population in The Fens with bad or very bad health.

302. Age- There is an average of 12% of population in The Fens over 66. This is fairly even over the area, with some areas, including the villages of Horndon on the Hill, Orsett and Bulphan, with a lower proportion.

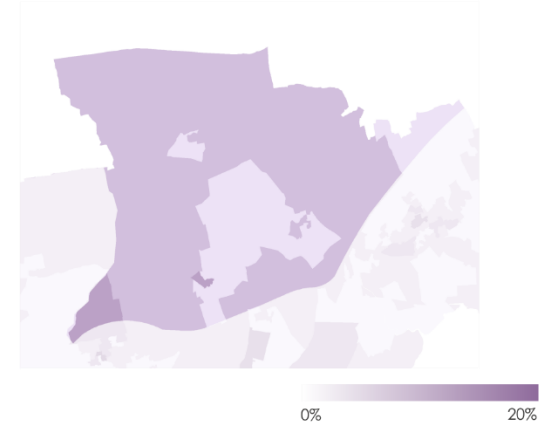
303. Education – 39% of the population in the area has level 1 or no qualifications. This proportion is fairly even across area.

The Fens

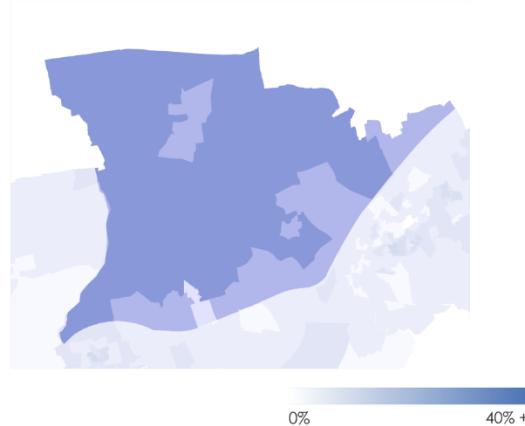
% of People Deprived in more than one Dimension
Census 2011



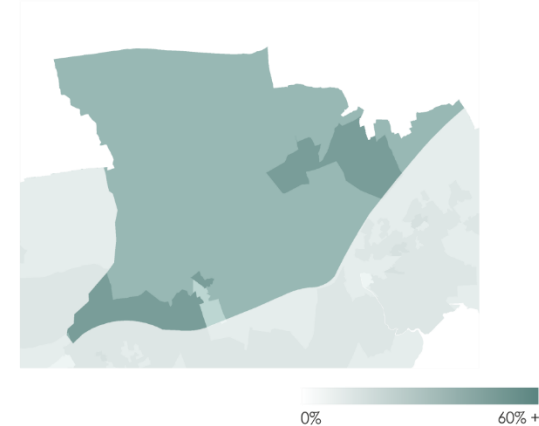
% of People with Bad or Very Bad Health
Census 2011



% of People aged 66 or Over
Census 2011



% of People with Level 1 or Fewer Qualifications
Census 2011

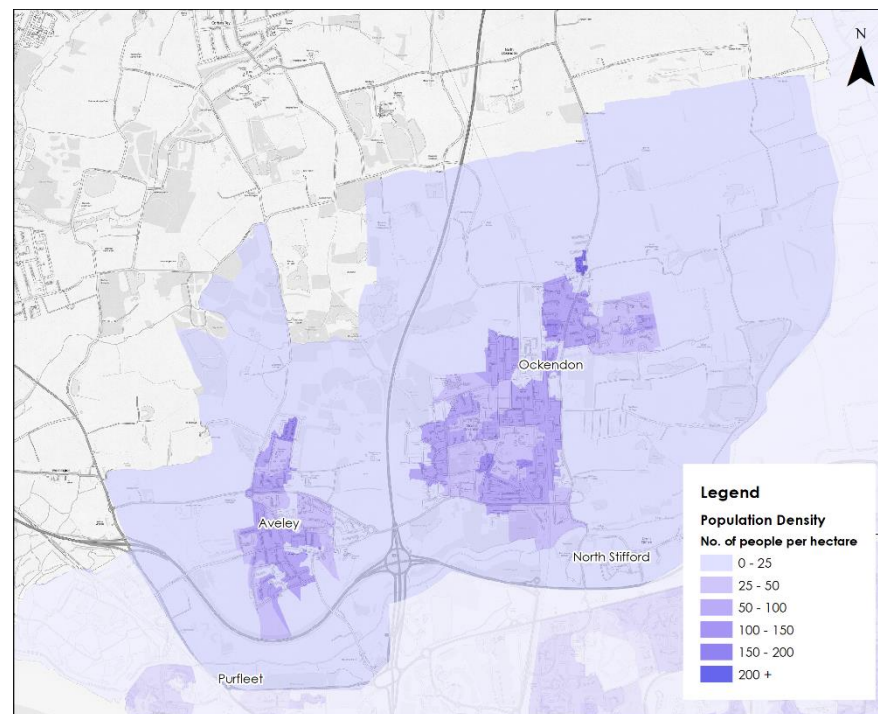
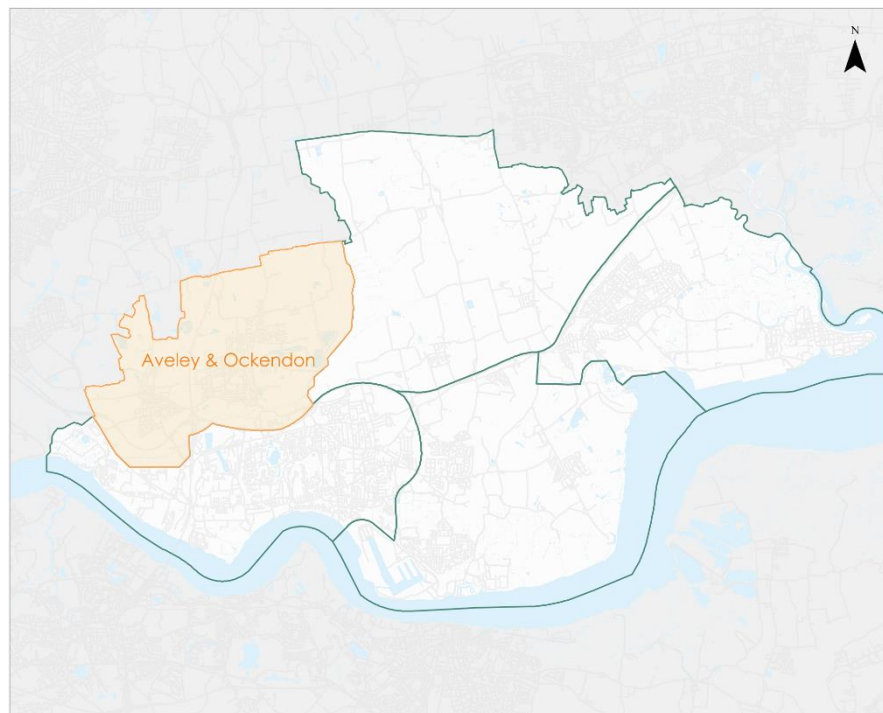


6. Aveley & Ockendon



6.1 Introduction - Aveley & Ockendon

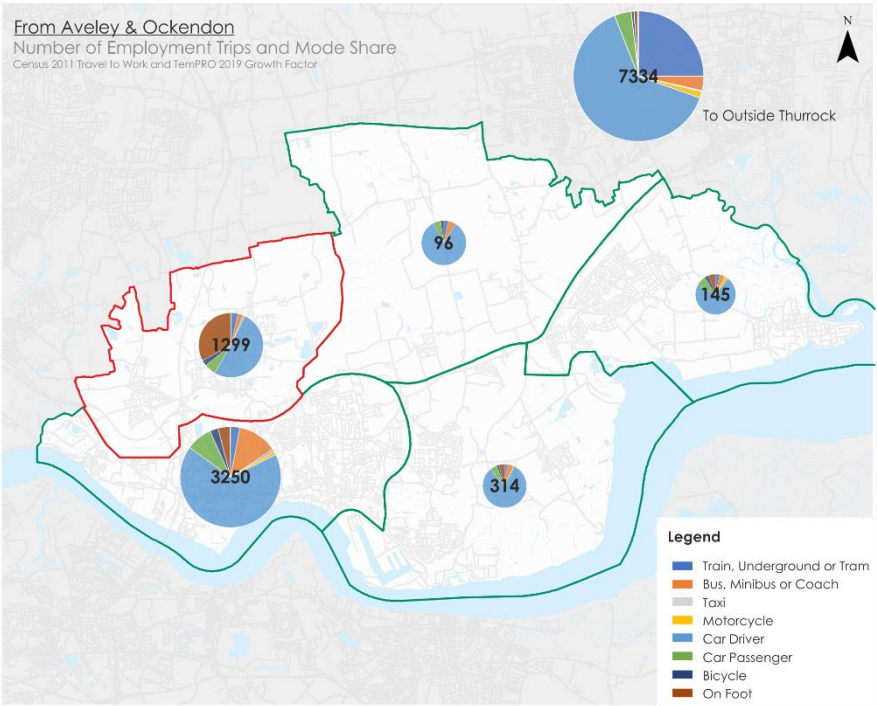
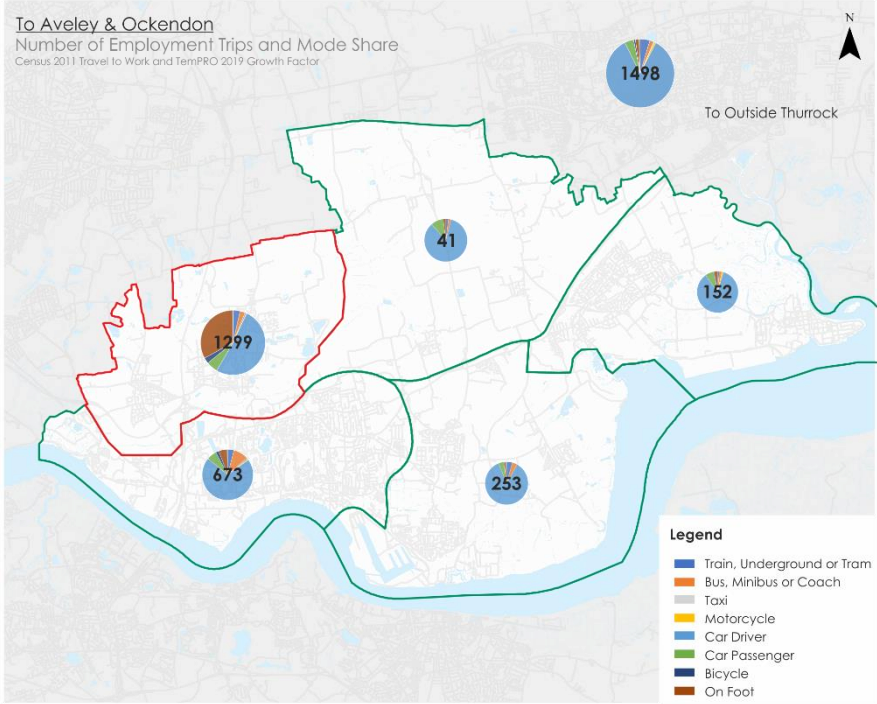
304. This area is located in the north western area of Thurrock, bound by the A13 to the south. The area is made up of the towns of Aveley and South Ockendon. The M25 bisects the area, and runs north-south in between the two towns.



305. The average population density of the area as a whole is 20 people per hectare, with higher densities in Aveley and South Ockendon.

Movement within Thurrock Urban Area

306. The map below illustrates employment travel demand and mode share of trips to the area of Aveley & Ockendon. The figures represent average weekday daily demand and are an estimate of 2019 demand from 2011 Travel to Work data.
307. This shows the majority of employment demand to the area comes outside of Thurrock, with 85% of these being car driver trips. Internal trips also make up a significant proportion of these trips, with around 33% made by foot and 51% made up of private car trips. The rest of the remaining employment trips are spread evenly across the rest of Thurrock, with most trips made by private car (between 80 and 85%)



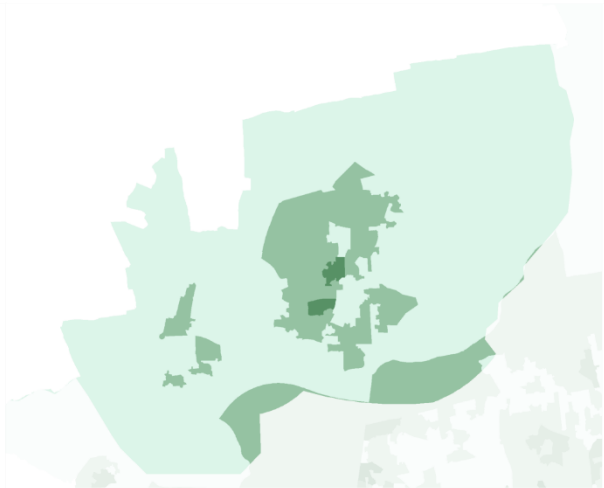
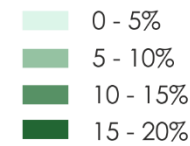
308. The map above illustrates employment travel demand and mode share of trips from the north west of Thurrock, with the figures showing estimated demands based on the same data.
309. This shows much of the employment demand from the area travels outside Thurrock, and is largely made up of private car trips (around 64%), with 25% of trips using rail travel.
310. There is also significant travel to the Thurrock Urban Area, with 67% of people travelling to the area using private cars and 16% using public transport (bus or rail travel)

Travel by Active Modes and Public Transport

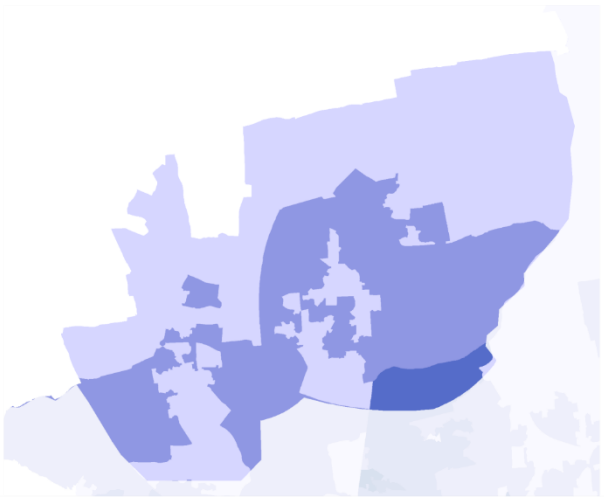
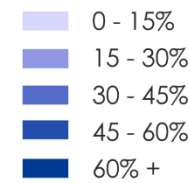
- 311. An analysis of mode share employment trip data (Census 2011) shows that, on average, 5% of the population in this area use active travel modes (walking and cycling) when travelling to work.
- 312. Active travel is relatively low throughout the area, with a higher proportion of residents using these modes in Ockendon and North Stifford, adjacent to the Thurrock Urban Area.
- 313. Public transport use for employment trips is mixed throughout the area, with increased use where towns are located. The average public transport use for employment trips over the whole area is 16%, which increases to upwards of 25% use in areas around North Stifford.

Aveley and Ockendon

Active Travel Mode Share
Census 2011 Mode Share

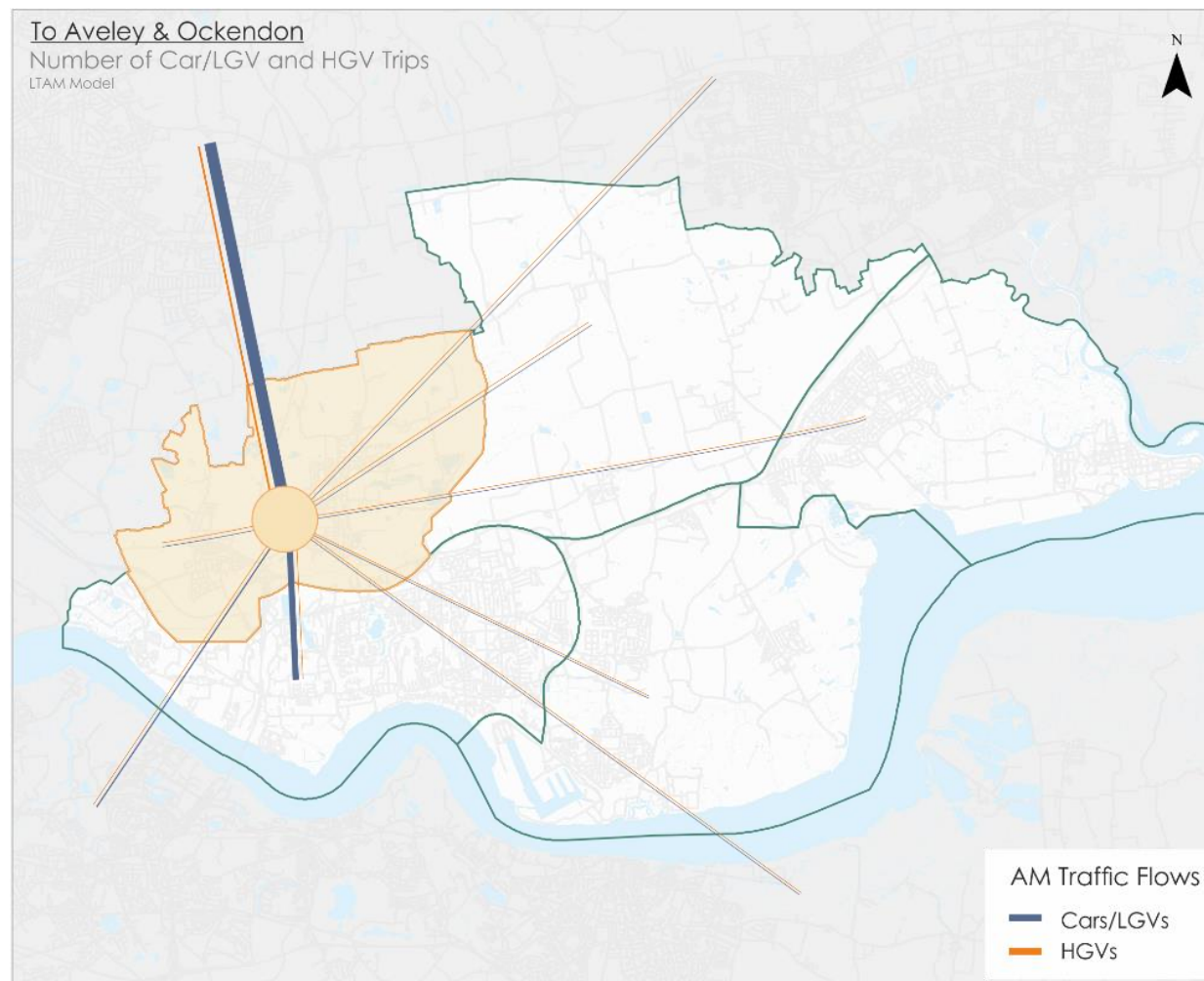


Public Transport Mode Share
Census 2011 Mode Share



HGV Movement

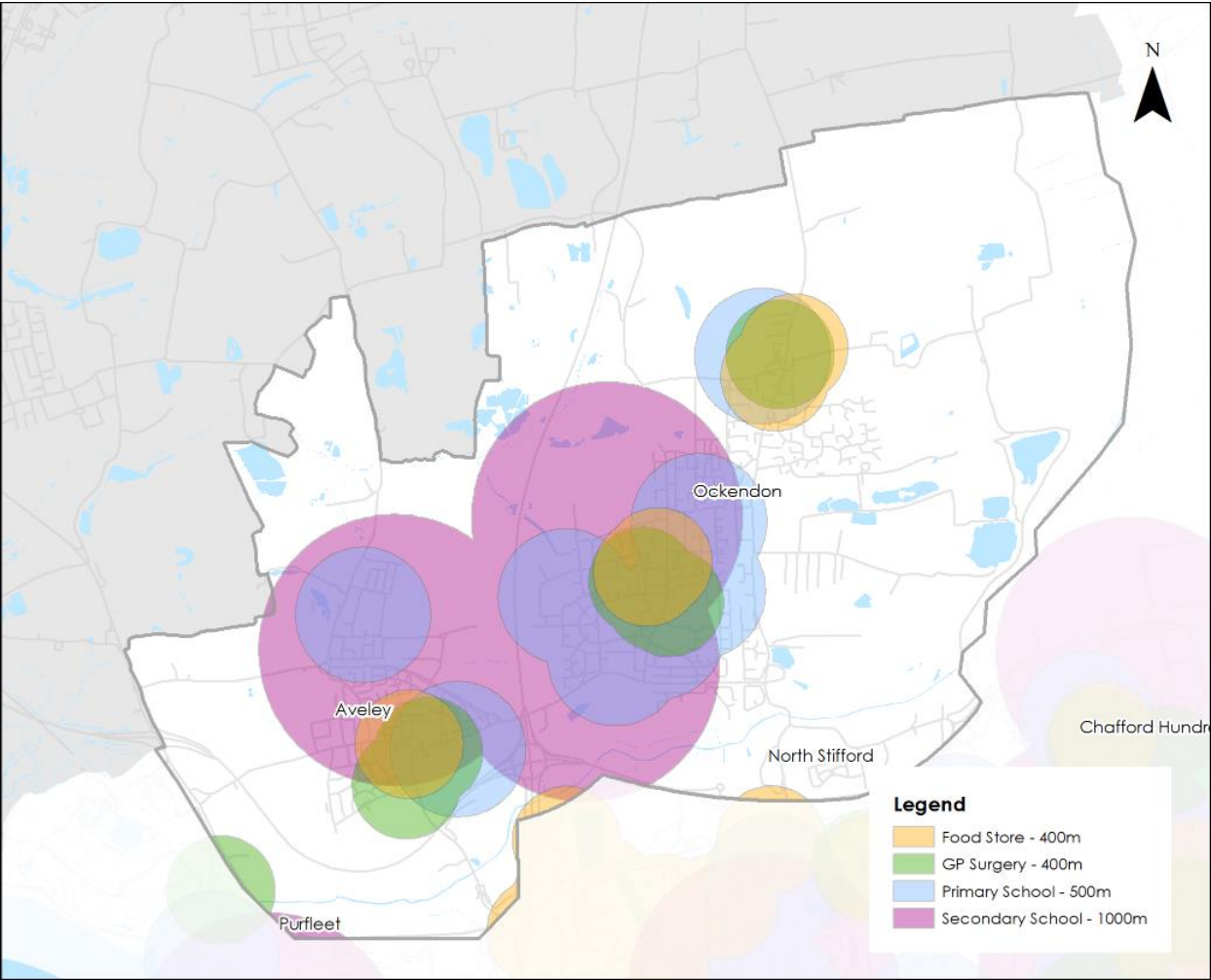
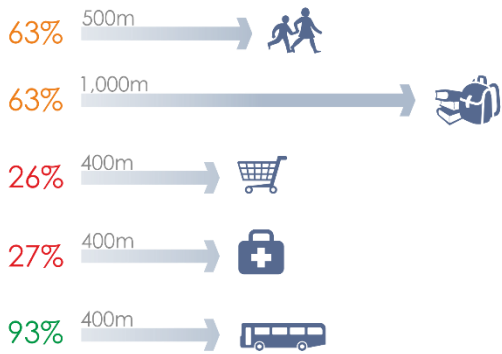
314. The Lower Thames Area Model cordon model has been used to analyse trips to and from the spatial areas within Thurrock and movement to and from outside of Thurrock in the north west, north east, south west and south east. This map shows the zones modelled and has been used to analyse HGV movement.
315. The map illustrates car/LGV travel and HGV travel to Aveley & Ockendon. Travel to this area comes mostly from outside of Thurrock, with the majority of other trips coming from the Thurrock Urban Area.
316. There is some HGV movement to the area, with a total of 228 HGVs travelling to the area in the AM peak hours (20% of all traffic travelling to the area).



Accessibility to Local Facilities

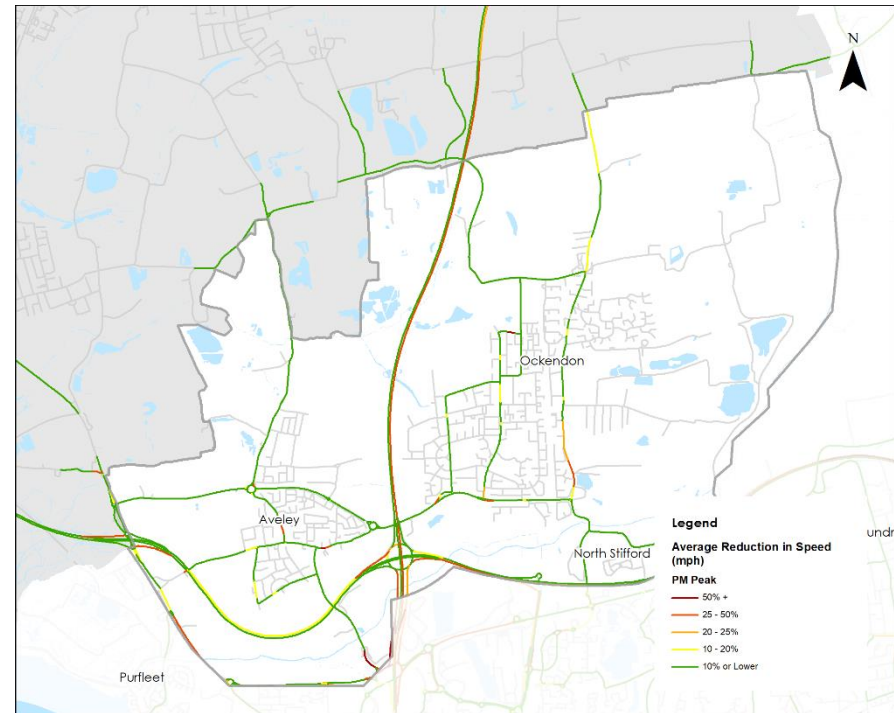
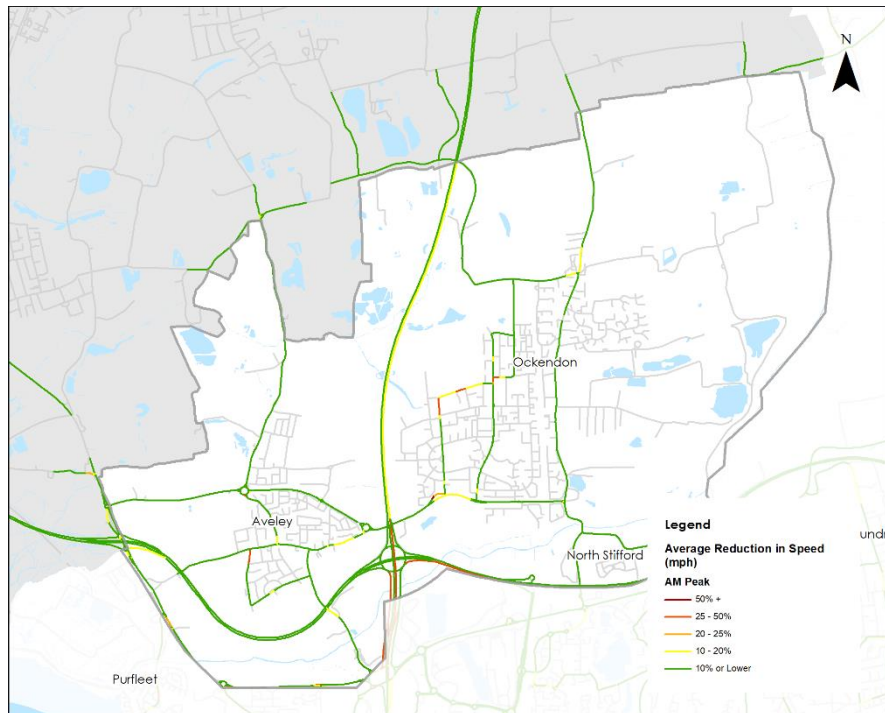
- 317. Similarly to other areas, there is very good accessibility to bus stops in the Aveley & Ockendon area, with 93% of residents able to walk to a bus stop within 400m.
- 318. Access to schools in average across the area, with 63% of people able to walk to primary schools and secondary schools within the recommended distances. These schools are located in Aveley and South Ockendon.
- 319. Accessibility to food stores and GP surgeries is low, with few GP surgeries and food stores located in Aveley and South Ockendon.

Accessibility to Local Facilities in Thurrock
Aveley and Ockendon



Average Delay – AM and PM Peak

320. Trafficmaster speed data has been provided by Thurrock Council to analyse the difference in speeds between interpeak hours and the AM and PM peak hours. A reduction in speeds in the peak hours would indicate delay on the road network, either due to volume of traffic or issues at junctions.
321. There is noticeable reduction of speed in the AM peak hour on M25, in particular at junction 30 with its junction with A13. Some roads in South Ockendon also experience a reduction in speed,



322. Similarly in the PM peak hour, there is significant delay along M25 as well as along some roads in South Ockendon. There is also some reduction in speed along A13 to the west of M25 in the PM peak hour.
323. Highways England project that the creation of the Lower Thames Crossing would provide congestion relief for this area of M25/A282, including junction 30. This is presented in the Transport modelling for the Lower Thames Crossing DCO evidence base.

Key Transport Links

Road Network and Bus Services:

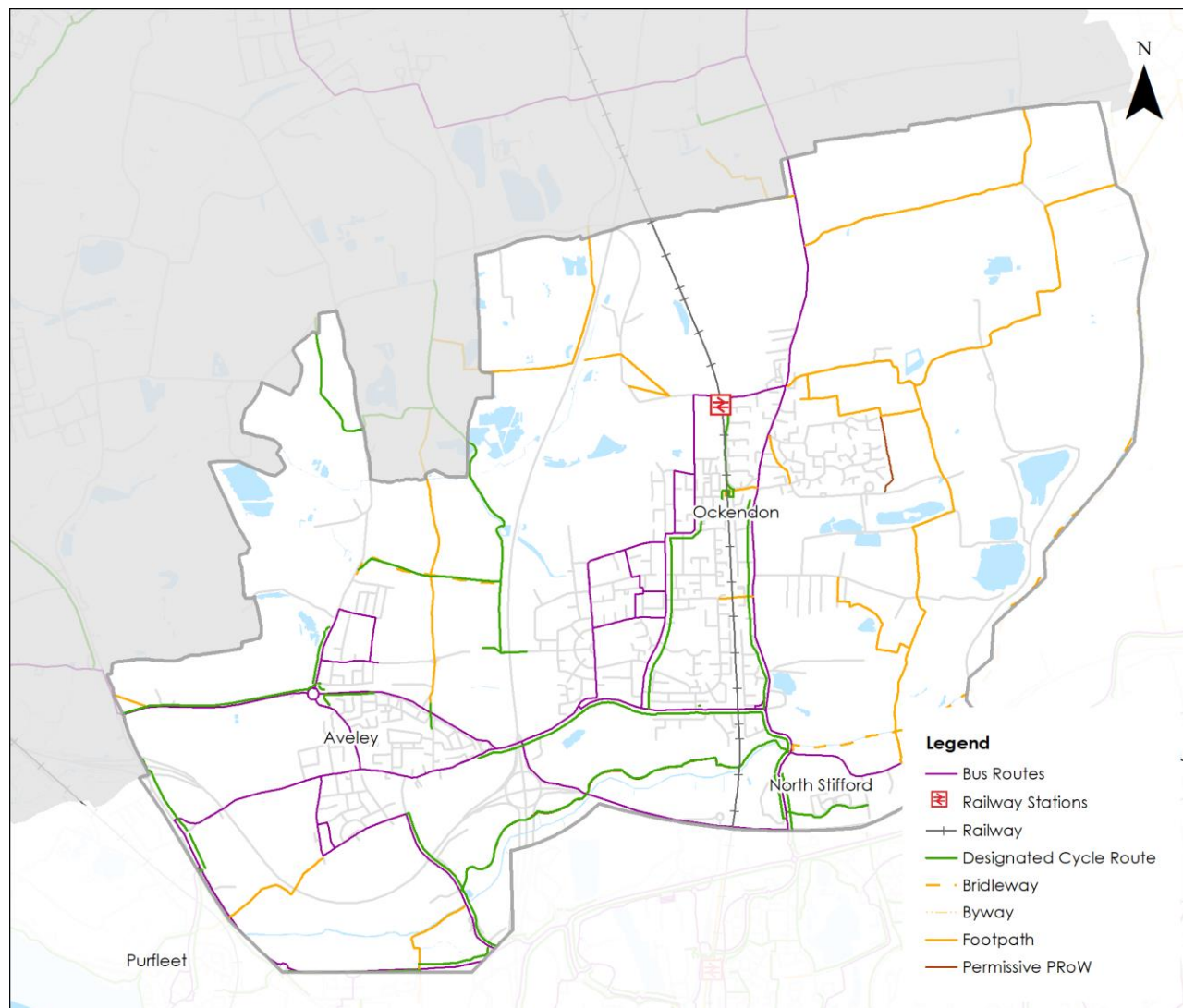
324. The B186 Pilgrims Lane links the Aveley & Ockendon area with the Thurrock Urban Area and provides connection to North Ockendon and areas further north. The M25 bisects the area and provides connections north and south of Thurrock.
325. The number 22 bus service runs every 20 minutes and serves Aveley and South Ockendon. The 372 bus route travels from the Thurrock Urban Area through Aveley to Hornchurch in Havering.

Rail Services:

326. Ockendon railway station provides direct rail services to the Thurrock Urban Area to the south and other locations within Thurrock, as well as Upminster to the north.

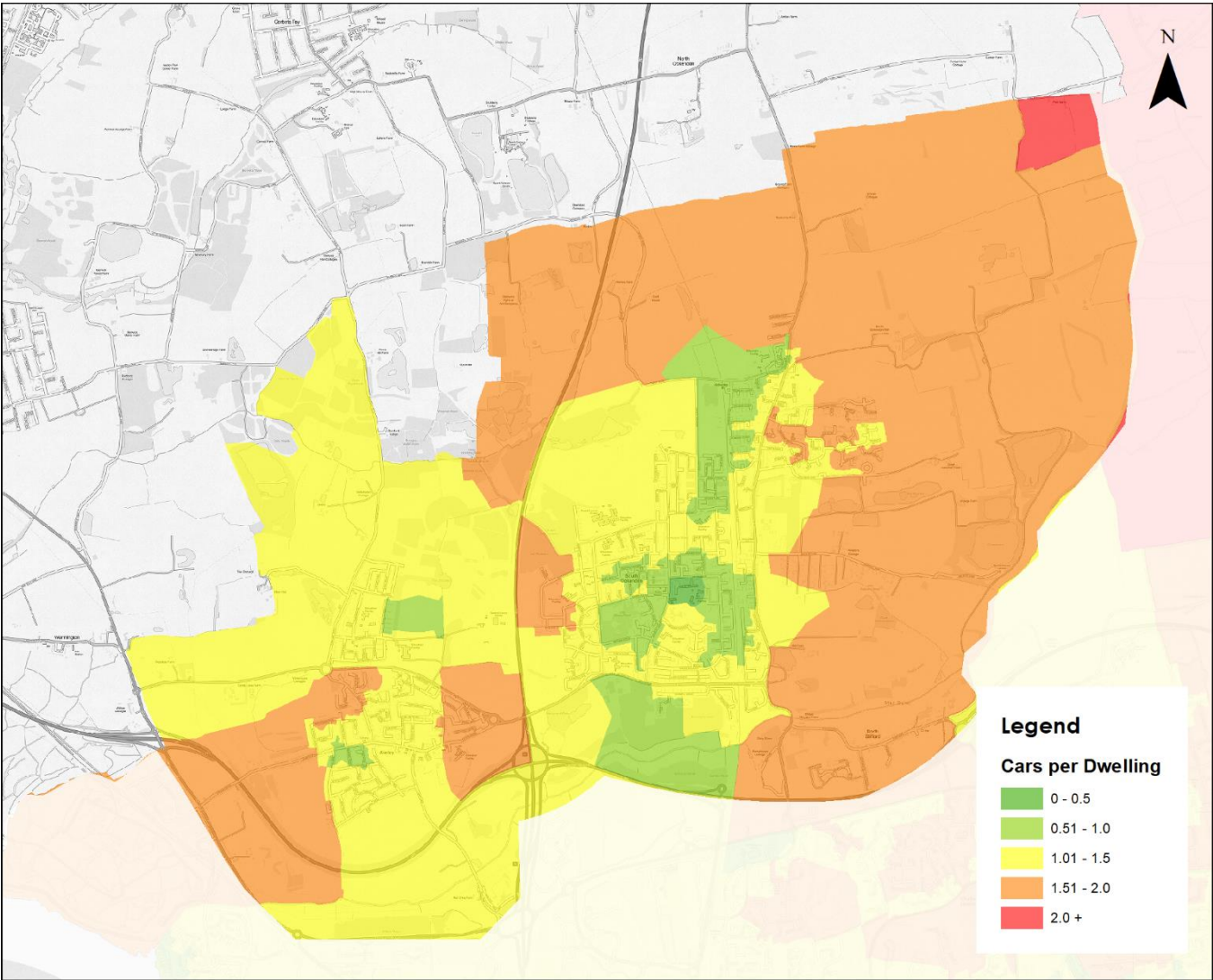
Walking and Cycling Infrastructure:

327. There are several dedicated cycle routes surrounding Ockendon, including routes along Mardyke River, located to the south of the Aveley & Ockendon area. There are fewer designated cycle routes located in Aveley.
328. Public Rights of Way in the area, mostly to the east, provide walking routes across rural lands between Ockendon and North Stifford.



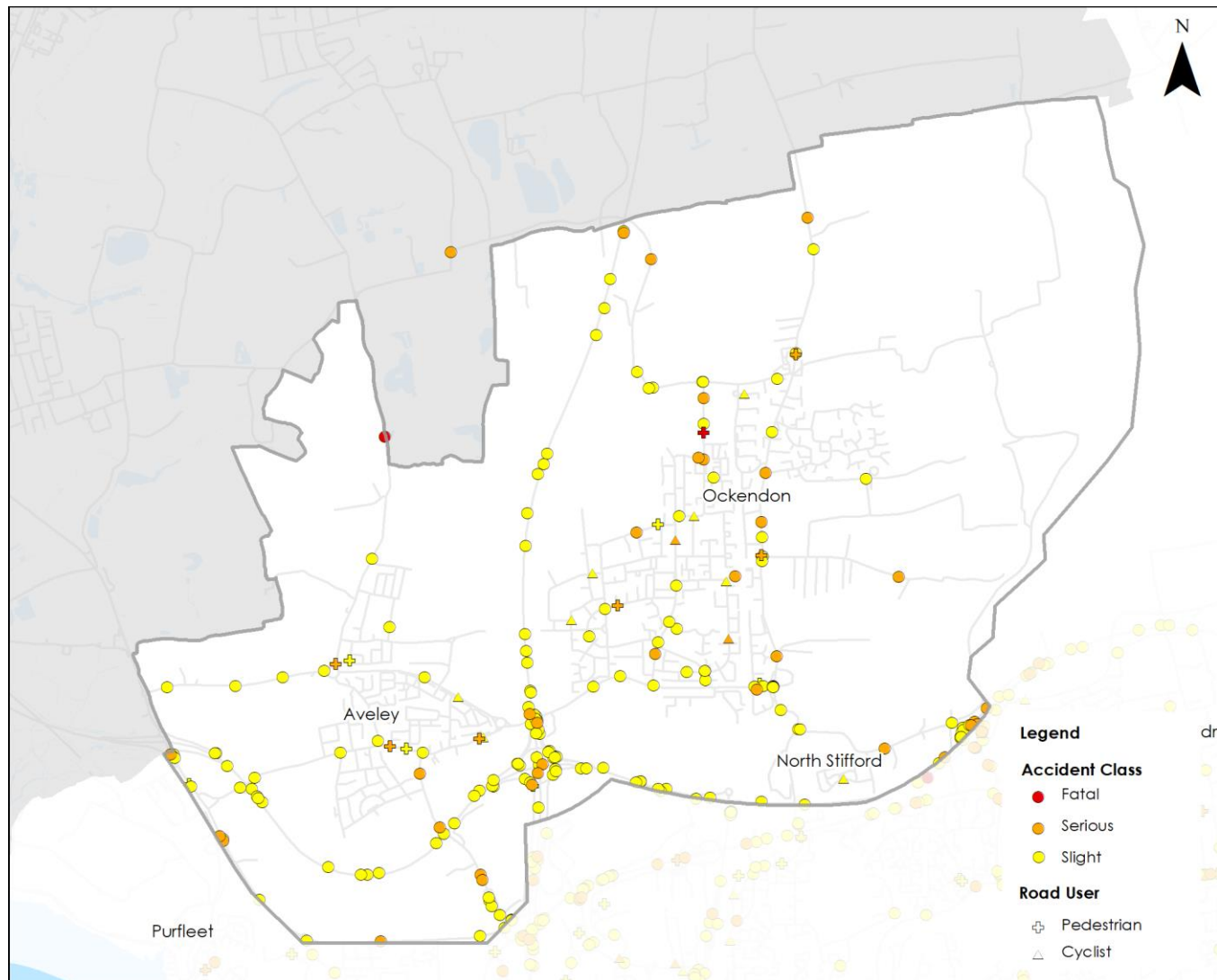
Car Ownership

329. Car ownership is mixed throughout The Aveley & Ockendon area, with lower car ownership in South Ockendon, and higher ownership in more rural areas to the east. This largely aligns with the varied dwelling density across the area.



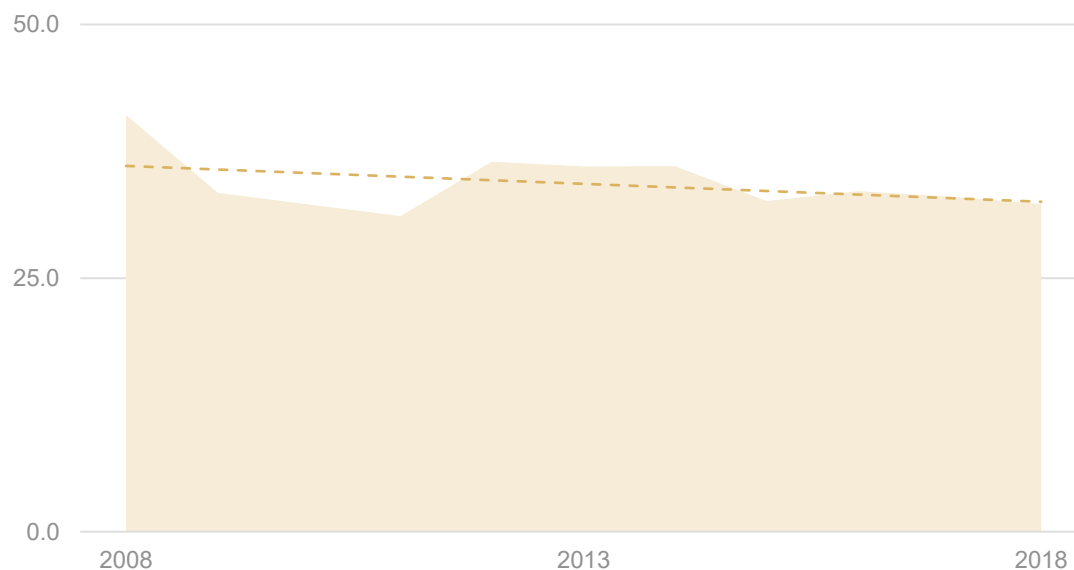
Accident Data Overview

330. This map shows slight, serious and fatal accidents recorded over a three year period in the Aveley & Ockendon area using data provided by Thurrock Council.
331. There was a total of 203 road traffic accidents across the area between 2017 and 2019, with 2 of these a fatal accident (1%), 39 serious (19%) and 162 slight accidents (80%).
332. Several accidents in the area involved vulnerable road users, with 10 involving cyclists (5%) and 13 involving pedestrians (6%). The accidents are located in residential areas of Aveley and Ockendon.
333. Two fatal accidents were recorded in the three year period; one in 2019, involving a car and a goods vehicle, located on Romford Road, and another in 2018 involving a pedestrian fatality located on Arisdale Avenue in South Ockendon.



Air Quality Trends

Annual Mean Concentration of NO₂ (µg/m³)



334. An air quality management area is located in Aveley, located on a section of High Street to the west of the M25.
335. Air quality data for this area has been provided by Thurrock Council, taken from NO₂ diffusion tube sites across Thurrock. Data has been analysed between 2008 and 2018 to understand air quality trends over the ten year period*.
336. The data shows that the annual mean concentration of NO₂ has steadily decreased over the ten year period, with an average of 34.3 µg/m³ across all years. The national average mean concentration of NO₂ (19.6 µg/m³, according to Ricardo Energy & Environment statistics provided by gov.uk). This rate is significantly higher than the national average.

*Not all diffusion sites gathered data every year, with some sites added in later years, providing a broader range of data across the area. As such, trends should be viewed as a whole over the 10-year period, not by a year-to-year basis.

Overview of deprivation, health, age & education

337. These maps show an overview of deprivation, health, age and education levels in Aveley & Ockendon.

338. Deprivation – 33% of people are noted as deprived in more than one dimension.

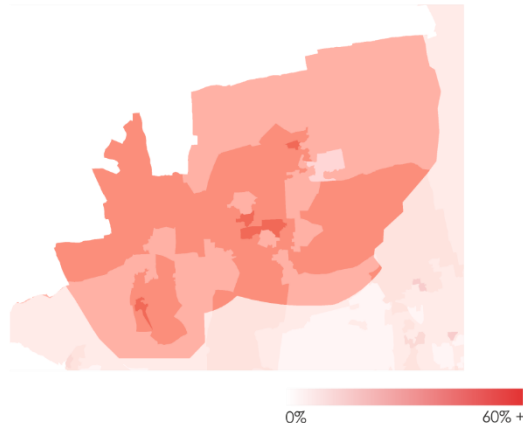
339. Health – health measures are average across the area, with a mean of 6% of the population in the area with bad or very bad health, with increases in some areas of South Ockendon.

340. Age- There is an average of 12% of population in the area over 66.

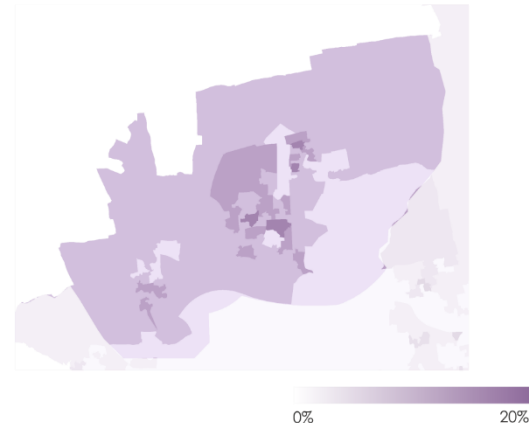
341. Education – 51% of the population in the area has level 1 or no qualifications,

Aveley and Ockendon

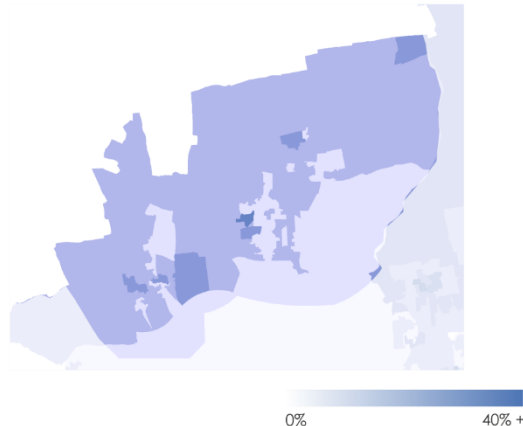
% of People Deprived in more than one Dimension
Census 2011



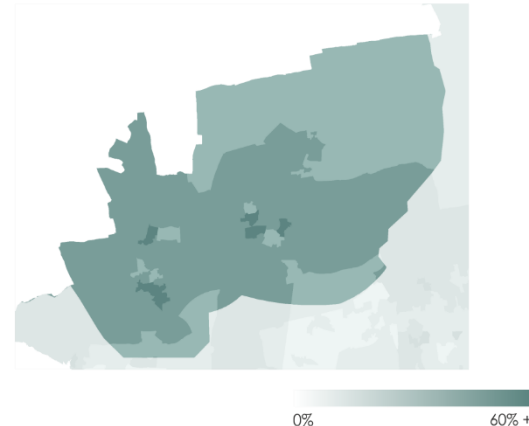
% of People with Bad or Very Bad Health
Census 2011



% of People aged 66 or Over
Census 2011



% of People with Level 1 or Fewer Qualifications
Census 2011



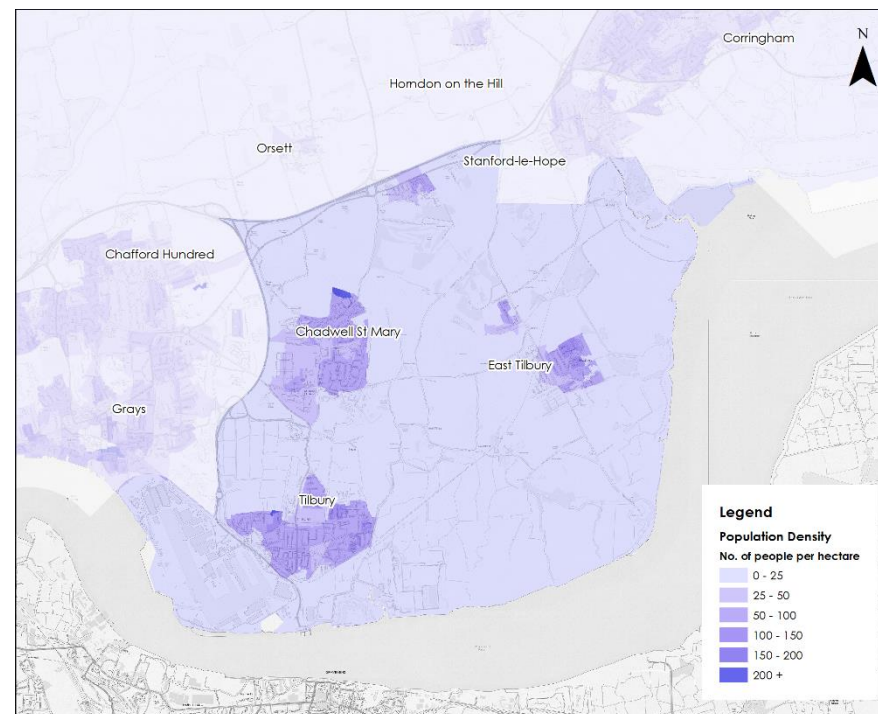
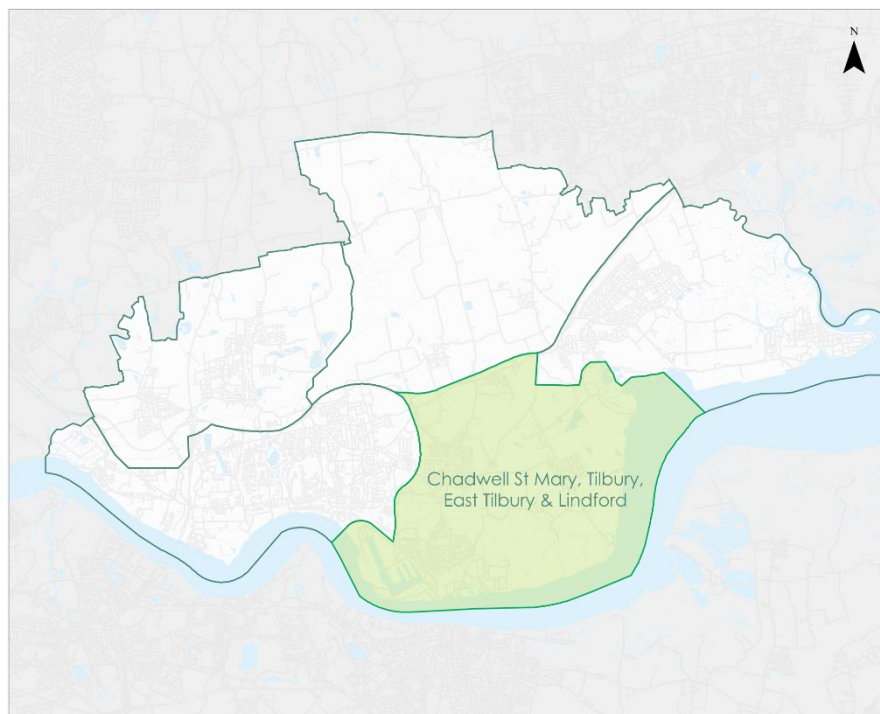
7. Chadwell St Mary, Tilbury, East Tilbury & Linford



7.1 Introduction - Chadwell St Mary, Tilbury, East Tilbury & Linford

342. This area is located in the southern area of Thurrock, bound by the A13 to the north; the A1089 to the west and the River Thames to the south. The area is made up of the town of Tilbury; the parish of Chadwell St Mary and three villages (West Tilbury, East Tilbury and Linford).

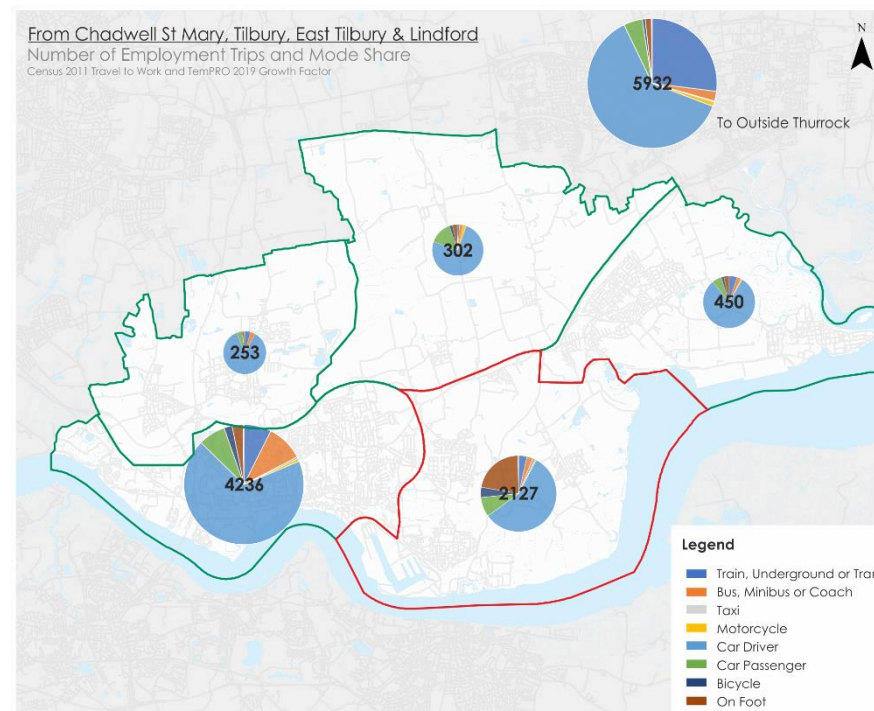
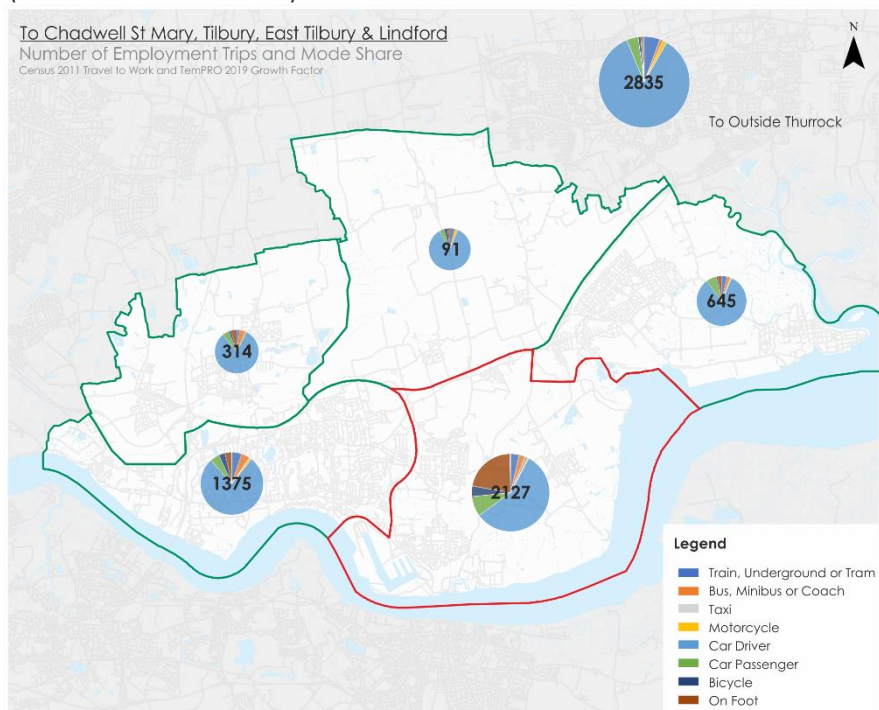
343. Tilbury is at the very south of the area, and is part of the Port of London.



344. The average population density of the area as a whole is 68 people per hectare. This density is higher in Tilbury, East Tilbury and Chadwell St Mary, with densities in some localised areas in excess of 200 people per hectare.

Movement within Chadwell St Mary, Tilbury, East Tilbury & Linford

345. The map below illustrates employment travel demand and mode share of trips to the south of Thurrock. The figures represent average weekday daily demand and are an estimate of 2019 demand from 2011 Travel to Work data.
346. This shows the majority of employment demand to the area comes outside of Thurrock, with the majority of these being car driver trips (around 85%). Internal trips also make up a significant proportion of these trips, with around 22% made by foot and 57% made up of private car trips. The majority of the remaining employment trips come from the Thurrock Urban Area, with the largest proportion being car driver and passenger trips (between 75 and 85%).



347. The map above illustrates employment travel demand and mode share of trips from the south of Thurrock, with the figures showing estimated demands based on the same data.
348. This shows much of the employment demand from the east travels outside Thurrock, and is largely made up of private car trips (around 62%), with 27% of trips using rail travel.
349. There is also significant travel to the Thurrock Urban Area, with 69% of people travelling to the area using private cars and 17% using public transport (bus or rail travel)

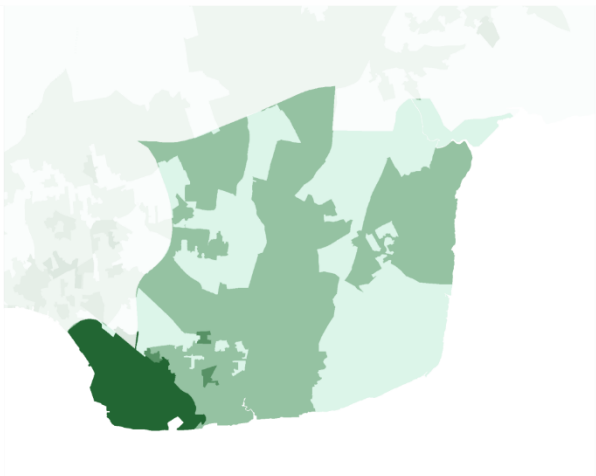
Travel by Active Modes and Public Transport

350. An analysis of mode share employment trip data (Census 2011) shows that, on average, 5% of the population in this area use active travel modes (walking and cycling) when travelling to work.

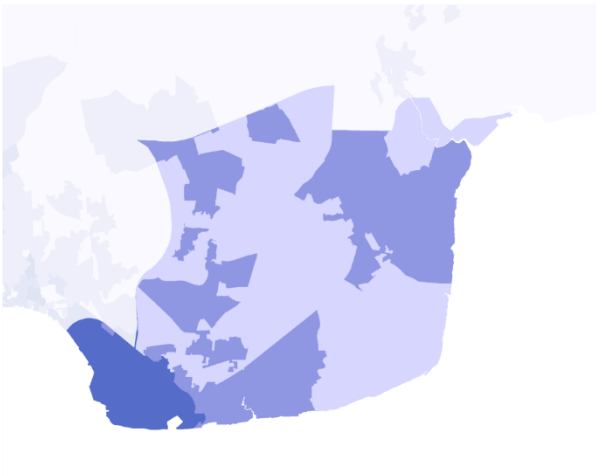
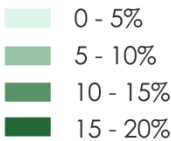
351. Active travel is mixed throughout the area, with a higher proportion of residents using these modes from Tilbury (10-15%).

352. Public transport use for employment trips is also mixed throughout the area, with increased use where towns and villages are located. The average public transport use for employment trips over the whole area is 14%, which increases to upwards of 25% in areas of Tilbury.

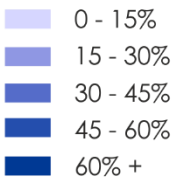
Chadwell St Mary, Tilbury, East Tilbury and Lindford



Active Travel Mode Share
Census 2011 Mode Share

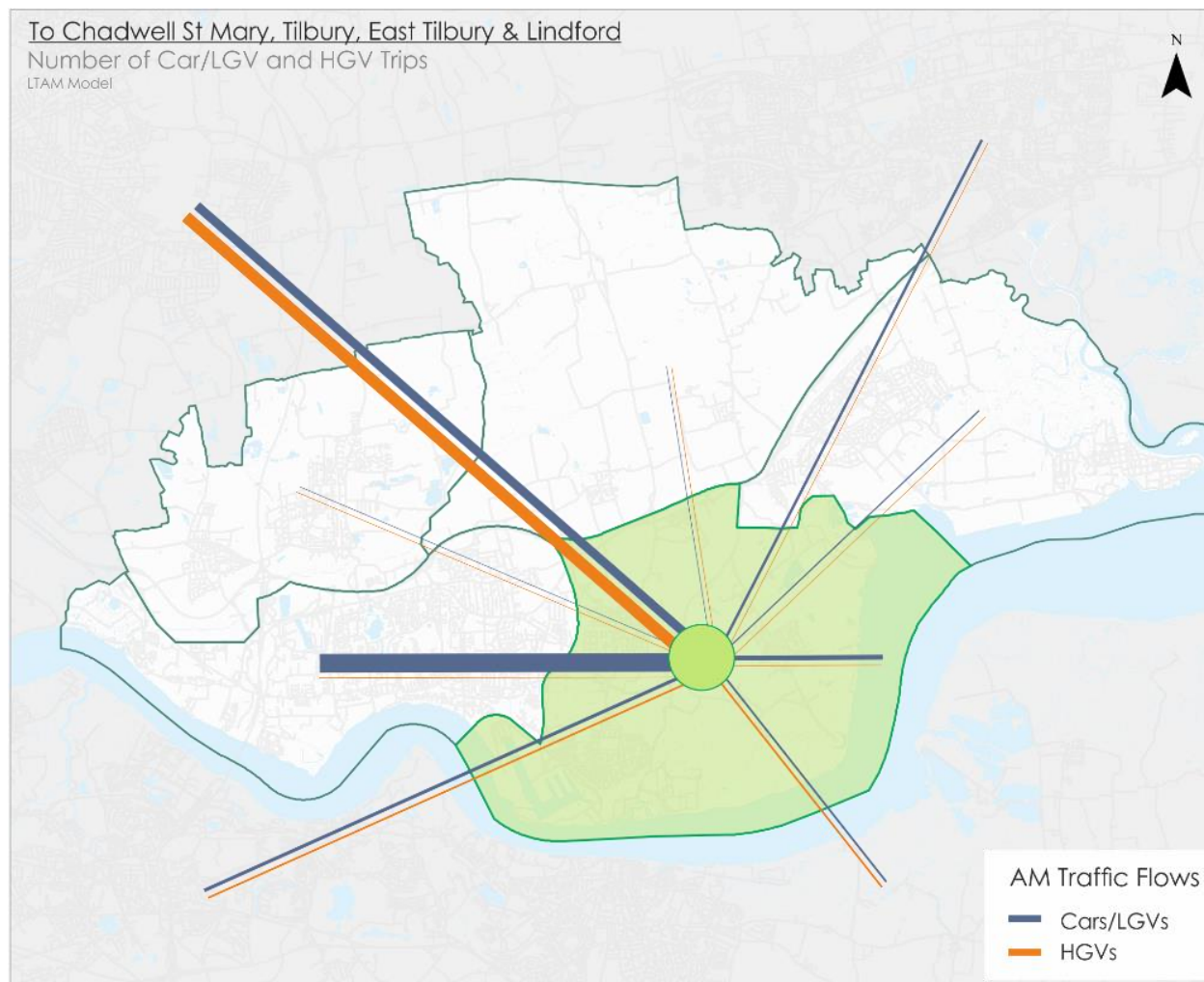


Public Transport Mode Share
Census 2011 Mode Share



HGV Movement

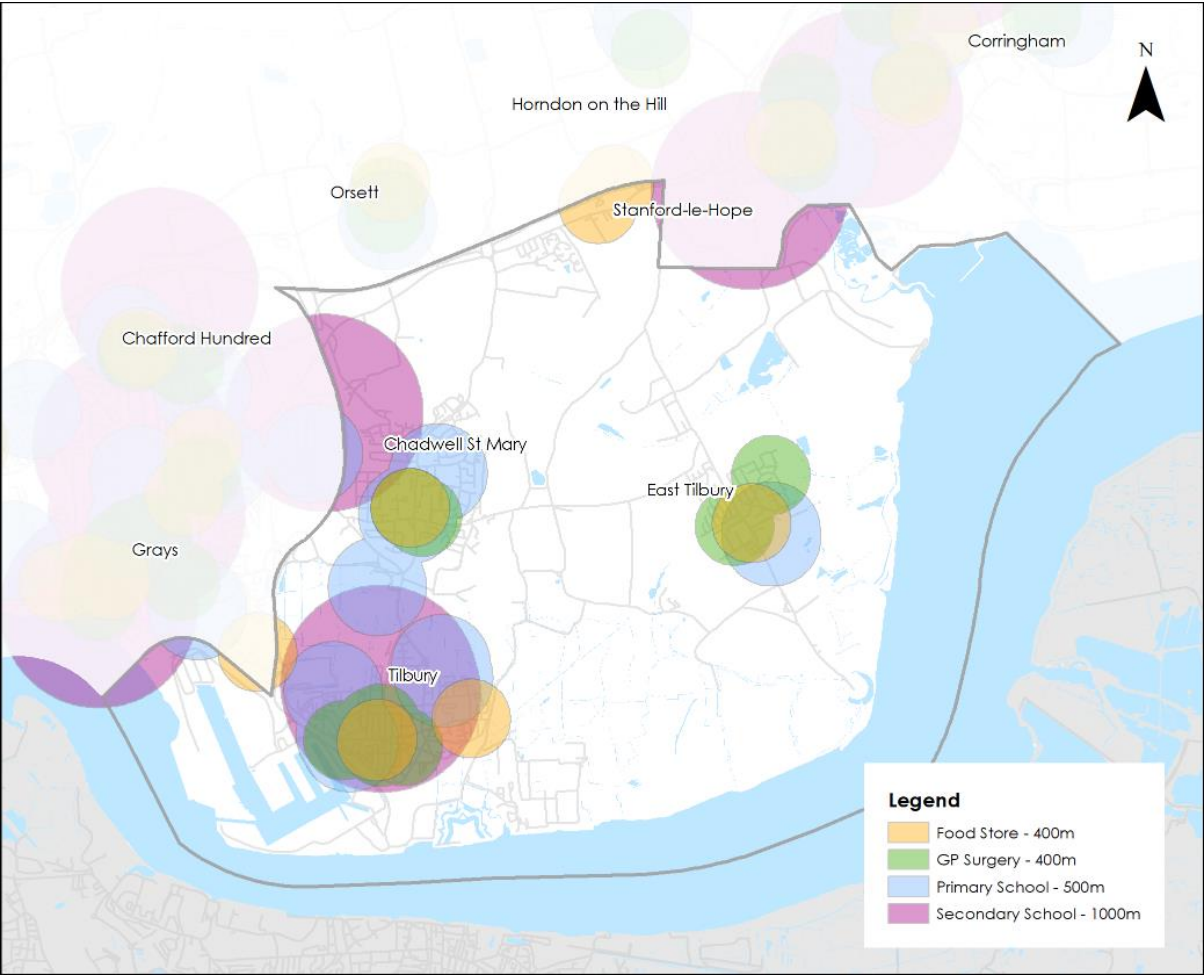
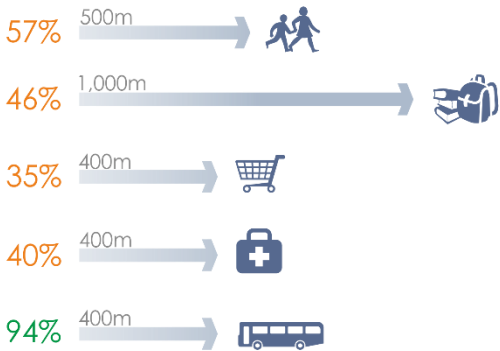
353. The Lower Thames Area Model cordon model has been used to analyse trips to and from the spatial areas within Thurrock and movement to and from outside of Thurrock in the north west, north east, south west and south east. This map shows the zones modelled and has been used to analyse HGV movement.
354. The map illustrates car/LGV travel and HGV travel to Chadwell St Mary, Tilbury, East Tilbury & Linford. Travel to this area comes mostly from the Thurrock Urban Area and outside of Thurrock from the north western areas.
355. There is significant HGV movement to the area, with a total of 701 HGVs travelling to the area in the AM peak hours (27% of all traffic travelling to the area) with over 400 of these travelling from the north west.



Accessibility to Local Facilities

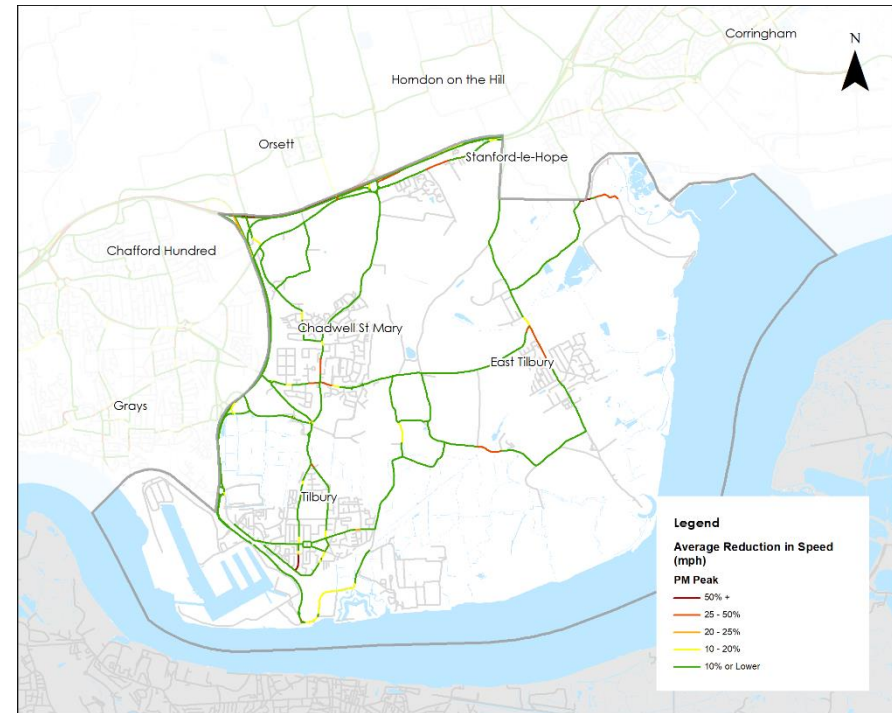
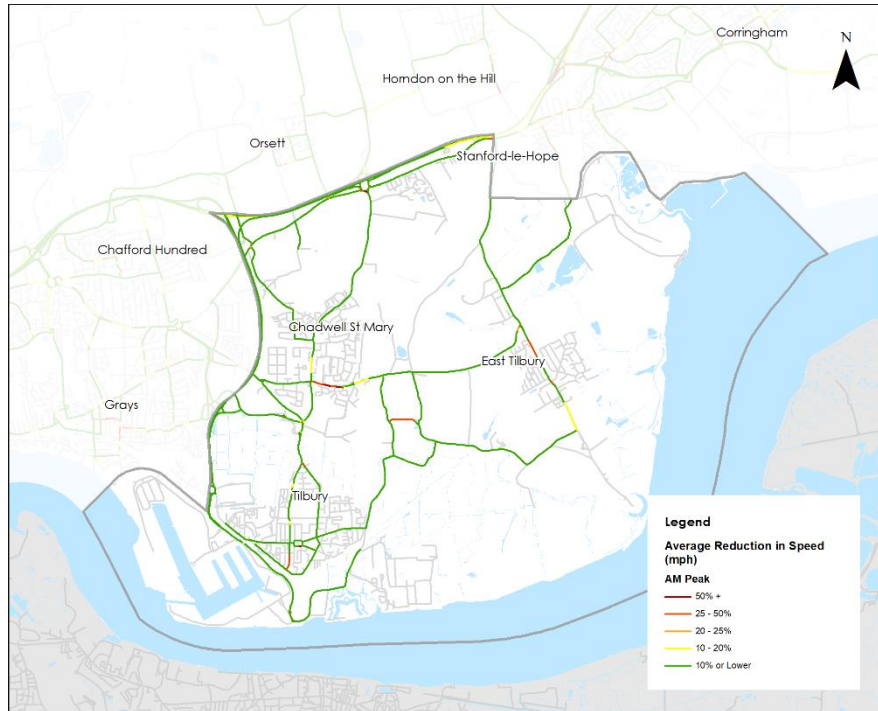
356. Chadwell St Mary, Tilbury, East Tilbury & Linford has very good walking accessibility to local bus stops across the area. However accessibility to other facilities is average overall, with 56% of residents able to walk to a primary school within 500m and 56% able to walk to a secondary school within 1,000m.
357. Secondary schools are located in Tilbury and just outside of Chadwell St Mary, with none located to the east of the area around East Tilbury and Linford.

Accessibility to Local Facilities in Thurrock
Chadwell St Mary, Tilbury, East Tilbury and Linford



Average Delay – AM and PM Peak

358. Trafficmaster speed data has been provided by Thurrock Council to analyse the difference in speeds between interpeak hours and the AM and PM peak hours. A reduction in speeds in the peak hours would indicate delay on the road network, either due to volume of traffic or issues at junctions.
359. There is little reduction in speed across the majority of the area, with only some noticeable slower speeds on sections of road in Chadwell St Mary and Tilbury. This data appear incongruous, however, when local observations are that the A1089 Asda Roundabout is known to suffer from peak period congestion.



360. Similarly in the PM peak hour, there is little reduction in speed across the area. There are some pockets of reduced speeds in Chadwell St Mary, Tilbury and East Tilbury. There is also further speed reductions on the A13 to the very north of the area in the PM peak hour. This section of the A13 would be changed significantly with the introduction of the Lower Thames Crossing interchange with A13 and with the current widening of that section of A13.

Key Transport Links

Road Network and Bus Services:

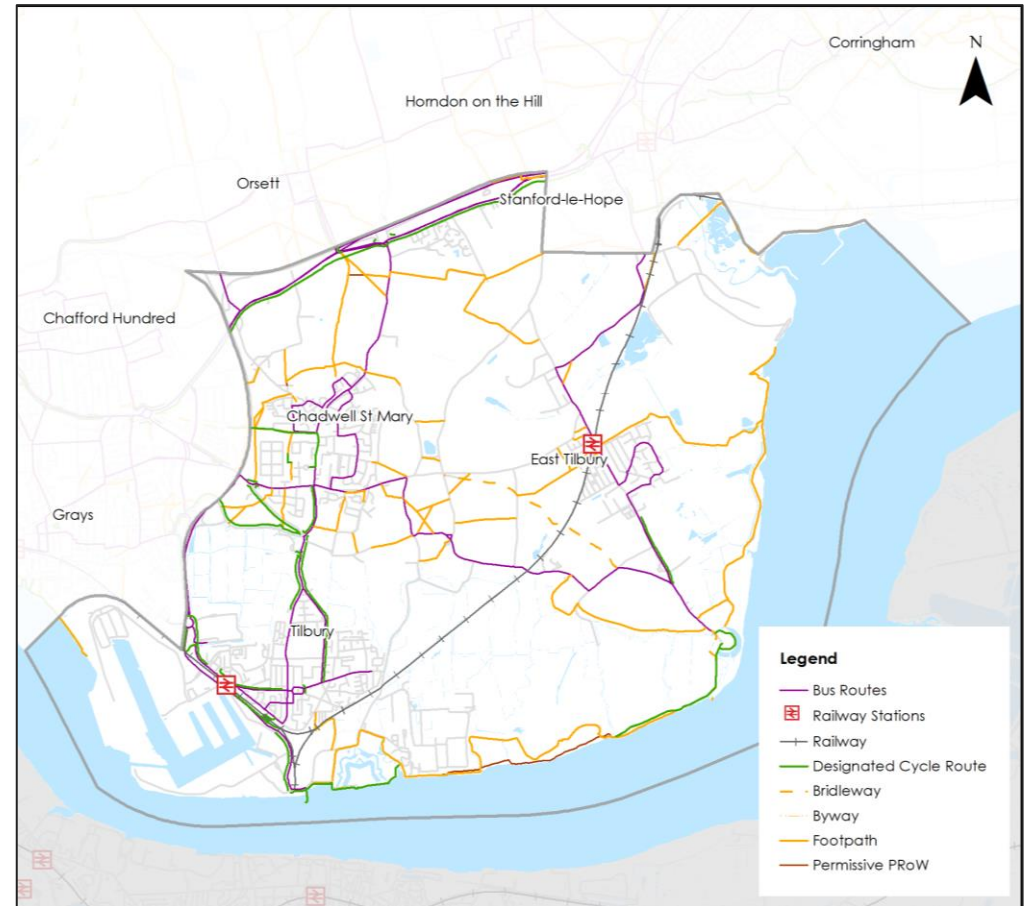
361. The A13 links to Brentwood Road into Chadwell St Mary from the north. The area is bound by the A1089 to the west, with the A1089/Marshfoot Road junction providing a route into Chadwell St Mary also. Routes which cross the line of the Lower Thames Crossing are to be re-provided through the delivery of the project with the exception of Hornsby Lane.
362. Asda roundabout is located south west of the area into Tilbury and Tilbury Docks. This represents the southern extent of the Highways England trunk road.
363. The area is served well by frequent bus services; 9 routes serve Tilbury, including services running every 20-30 minutes (66, 73/73A, 99). The 33 bus service serves Chadwell St Mary every 15 minutes.
364. There is one bus route providing services to East Tilbury and Linford, operating every three hours. There are no weekend services for these areas.

Rail Services:

365. Tilbury railway station and East Tilbury railway station both provide direct services to other parts of Thurrock, including Grays to the west and Stanford-le-Hope to the east.

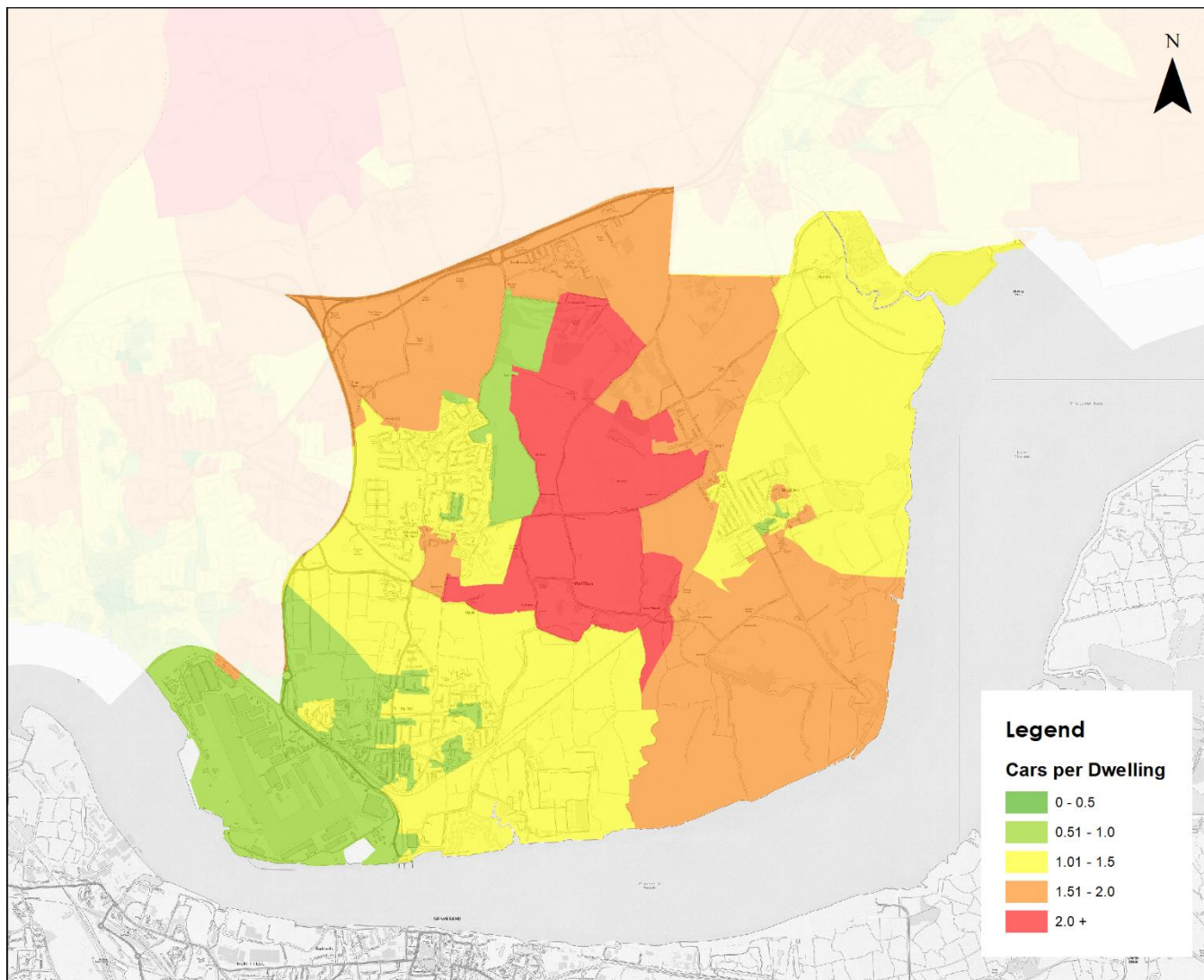
Walking and Cycling Infrastructure:

366. Dedicated cycle routes link Chadwell St Mary to Tilbury north to south. However there are no dedicated cycle routes providing east-west links towards East Tilbury. Routes are proposed to be enhanced as part of the Lower Thames Crossing project.
367. There are several Public Rights of Ways, including bridleways and footpaths providing sustainable connections around Chadwell St Mary and East Tilbury. Other walking connections are provided in Tilbury adjacent to the River Thames.



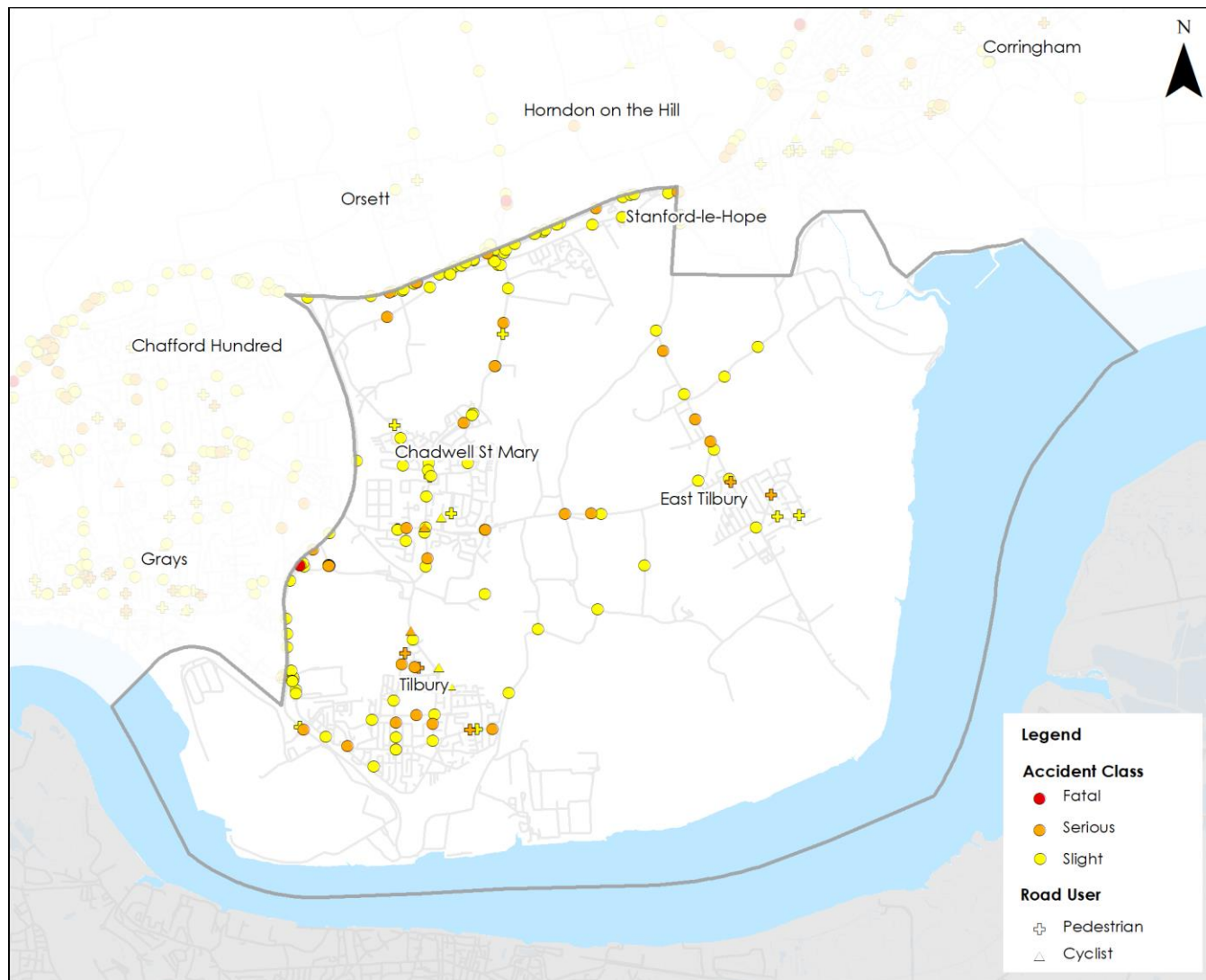
Car Ownership

368. Car ownership is mixed throughout Chadwell St Mary, Tilbury, East Tilbury & Linford; car ownership is highest in the more rural areas between Chadwell St Mary and Linford.
369. The number of cars per dwelling decreases in Tilbury, where active travel and public transport use is more prevalent.



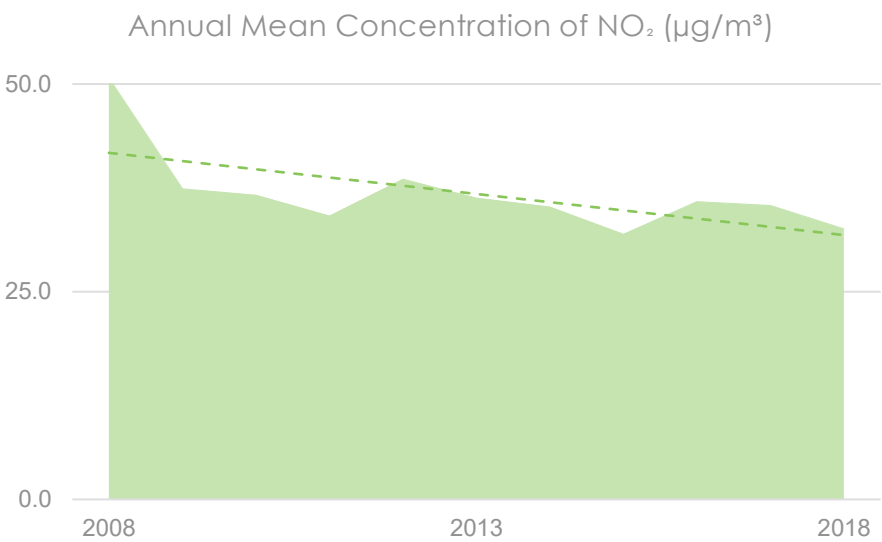
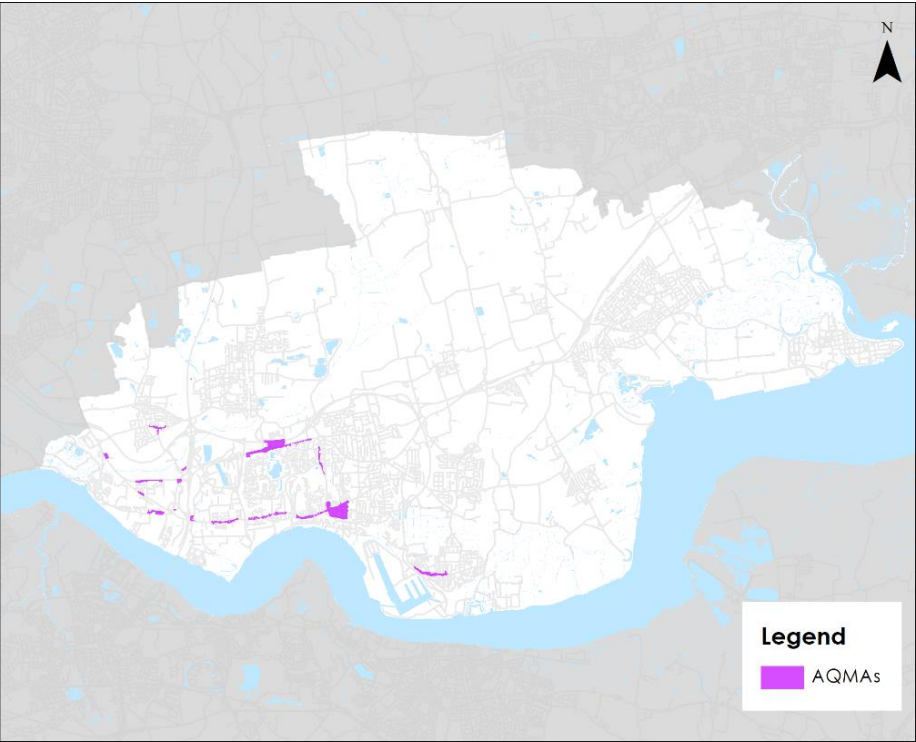
Accident Data Overview

370. This map shows slight, serious and fatal accidents recorded over a three year period in Chadwell St Mary, Tilbury, East Tilbury & Linford, using data provided by Thurrock Council.
371. There was a total of 149 road traffic accidents across the area between 2017 and 2019, with 1 of these a fatal accident (1%), 34 serious (23%) and 114 slight accidents (77%).
372. Several accidents in the area involved vulnerable road, with 5 involving cyclists (3%) and 14 involving pedestrians (9%). The accidents are located in residential areas of Chadwell St Mary, East Tilbury and Tilbury.
373. One fatal accident was recorded in 2018, located on the A1089 at the junction with Marshfoot Road. This accident involved a single private car.



Air Quality Trends

374. An air quality management area is located in Tilbury, surrounding Dock Road and Calcutta Road, adjacent to Tilbury Docks and Tilbury railway station.



375. Air quality data for this area has been provided by Thurrock Council, taken from NO₂ diffusion tube sites across Thurrock. Data has been analysed between 2008 and 2018 to understand air quality trends over the ten year period*.

376. The data shows that the annual mean concentration of NO₂ has steadily decreased over the ten year period, with an average of 36.8 µg/m³ across all years. This is almost 50% higher than the national average mean concentration of NO₂ (19.6 µg/m³, according to Ricardo Energy & Environment statistics provided by gov.uk).

*Not all diffusion sites gathered data every year, with some sites added in later years, providing a broader range of data across the area. As such, trends should be viewed as a whole over the 10-year period, not by a year-to-year basis.

Overview of deprivation, health, age & education

377. These maps show an overview of deprivation, health, age and education levels in Chadwell St Mary, Tilbury, East Tilbury & Linford.

378. Deprivation – 33% of people are noted as deprived in more than one dimension, with deprivation highest in areas surrounding Tilbury and Chadwell St Mary. Deprivation is lower to the north of the area, in the neighbourhood of Southfields.

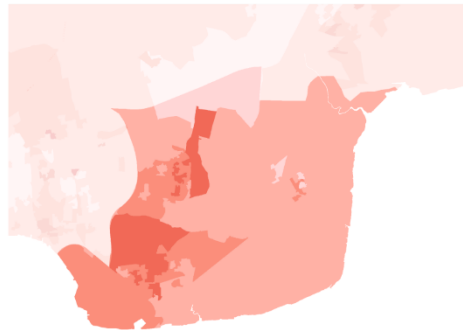
379. Health – health measures are average across the area, with a mean of 6% of the population in the area with bad or very bad health, with increases in some areas of Chadwell St Mary.

380. Age- There is an average of 12% of population in the area over 66. Similarly to other demographics, the over 66 population is higher in areas of Chadwell St Mary.

381. Education – 52% of the population in the area has level 1 or no qualifications,

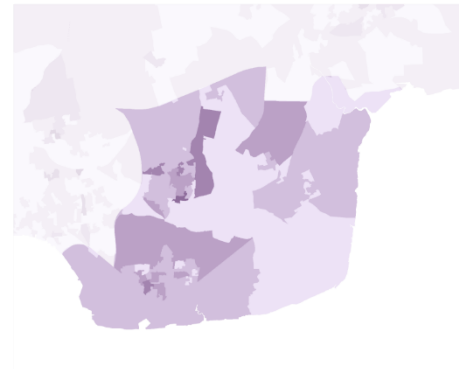
Chadwell St Mary, Tilbury, East Tilbury and Lindford

% of People Deprived in more than one Dimension
Census 2011



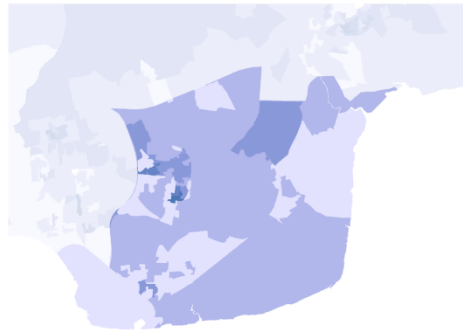
0% 60% +

% of People with Bad or Very Bad Health
Census 2011



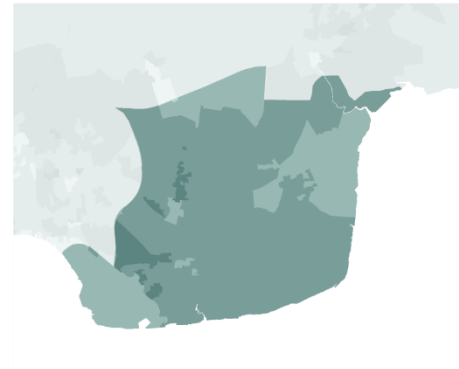
0% 20% +

% of People aged 66 or Over
Census 2011



0% 40% +

% of People with Level 1 or Fewer Qualifications
Census 2011



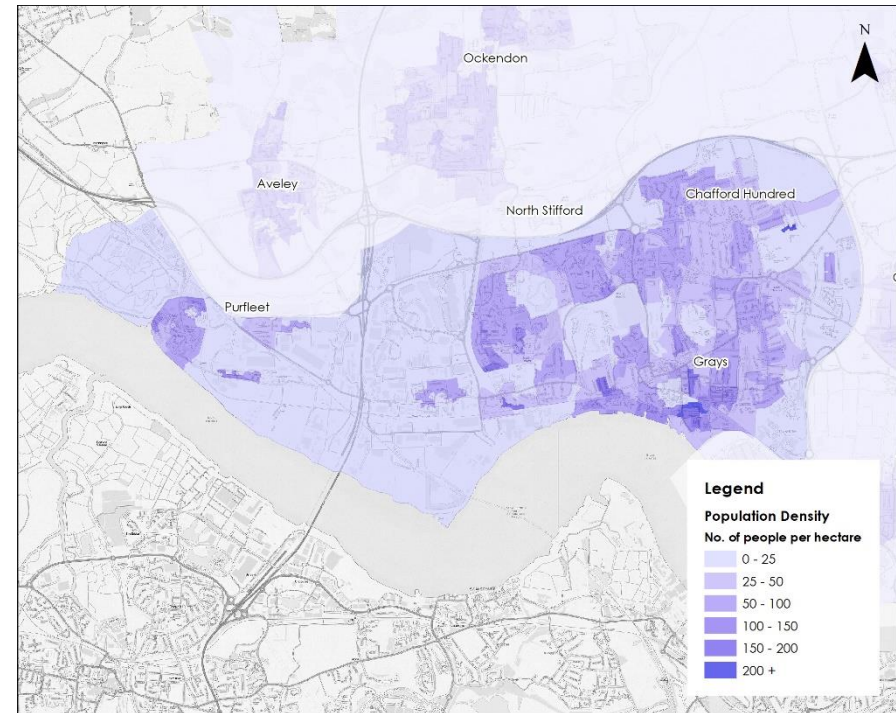
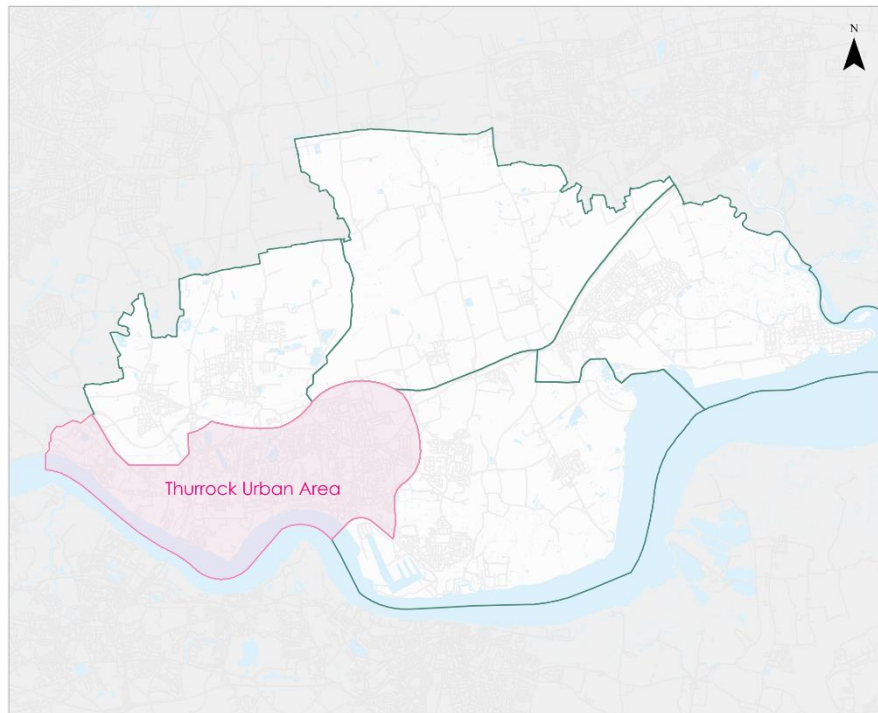
0% 60% +

8. Thurrock Urban Area



8.1 Introduction - Thurrock Urban Area

382. This area is located in the south western area of Thurrock, bound by the A13 to the north; the A1089 to the east and the River Thames to the south. The area is made up of the towns of Grays, Chafford Hundred and Purfleet to the west. The M25 bisects the area, and runs north-south between Lakeside to the east and Purfleet to the west.

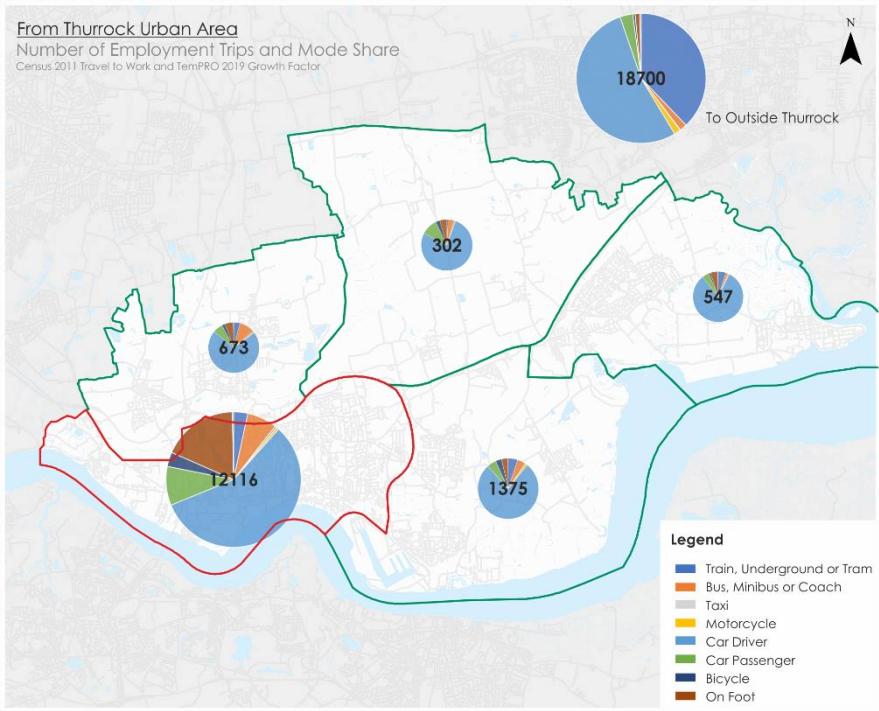
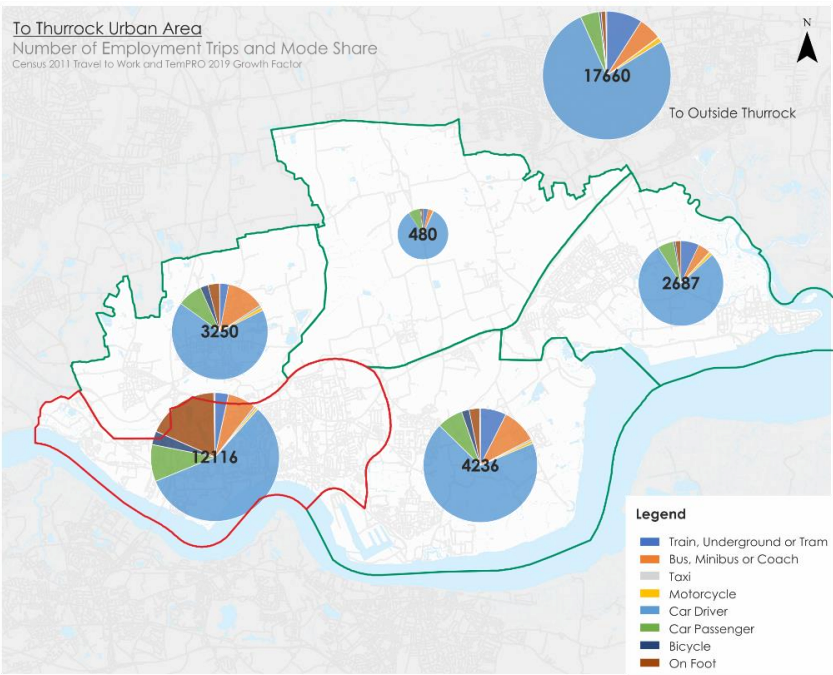


383. The population density in the area is higher in the eastern parts of the Thurrock Urban Area, surrounding Grays and Chafford Hundred. Density is lower west of the A126, with pockets of higher density located in Purfleet.

384. The Thurrock Urban Area as a whole has an average population density of 67 people per hectare

Movement within Thurrock Urban Area

385. The map below illustrates employment travel demand and mode share of trips to the Thurrock Urban Area. The figures represent average weekday daily demand and are an estimate of 2019 demand from 2011 Travel to Work data.
386. This shows that a large number of employment trips come from outside of Thurrock, with 77% of these made by private car. Internal trips also make up a significant portion of employment travel to the area. These trips are primarily made from private car journeys, with 18% made on foot, and 7% made by bus.
387. There is further travel made to the area from the south and north western parts of Thurrock. Again these trips are largely made by car drivers (between 65 and 70%)



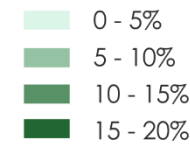
388. The map above illustrates employment travel demand and mode share of trips from the Thurrock Urban Area, with the figures showing estimated demands based on the same data.
389. This shows much of the employment demand from the Thurrock Urban Area travels to areas outside of Thurrock, with 53% of people travelling to employment destinations outside of Thurrock by private car. Notably, a significant proportion of these employment trips travel by rail to the outside of Thurrock (38%)

Travel by Active Modes and Public Transport

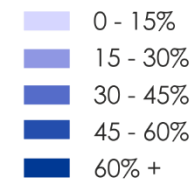
390. An analysis of mode share employment trip data (Census 2011) shows that, on average, 7% of the population in this area use active travel modes (walking and cycling) when travelling to work.
391. Active travel is mixed throughout the area, with areas of higher active travel use in areas nearby railway stations.
392. Public transport use for employment trips is also mixed throughout the area, with an average of 21% of the Thurrock Urban Area using public transport for employment trips. There is increased use in Purfleet, Lakeside and Grays. There is less public transport use in more residential areas of Chafford Hundred and Stifford Clays.

Thurrock Urban Area

Active Travel Mode Share
Census 2011 Mode Share



Public Transport Mode Share
Census 2011 Mode Share

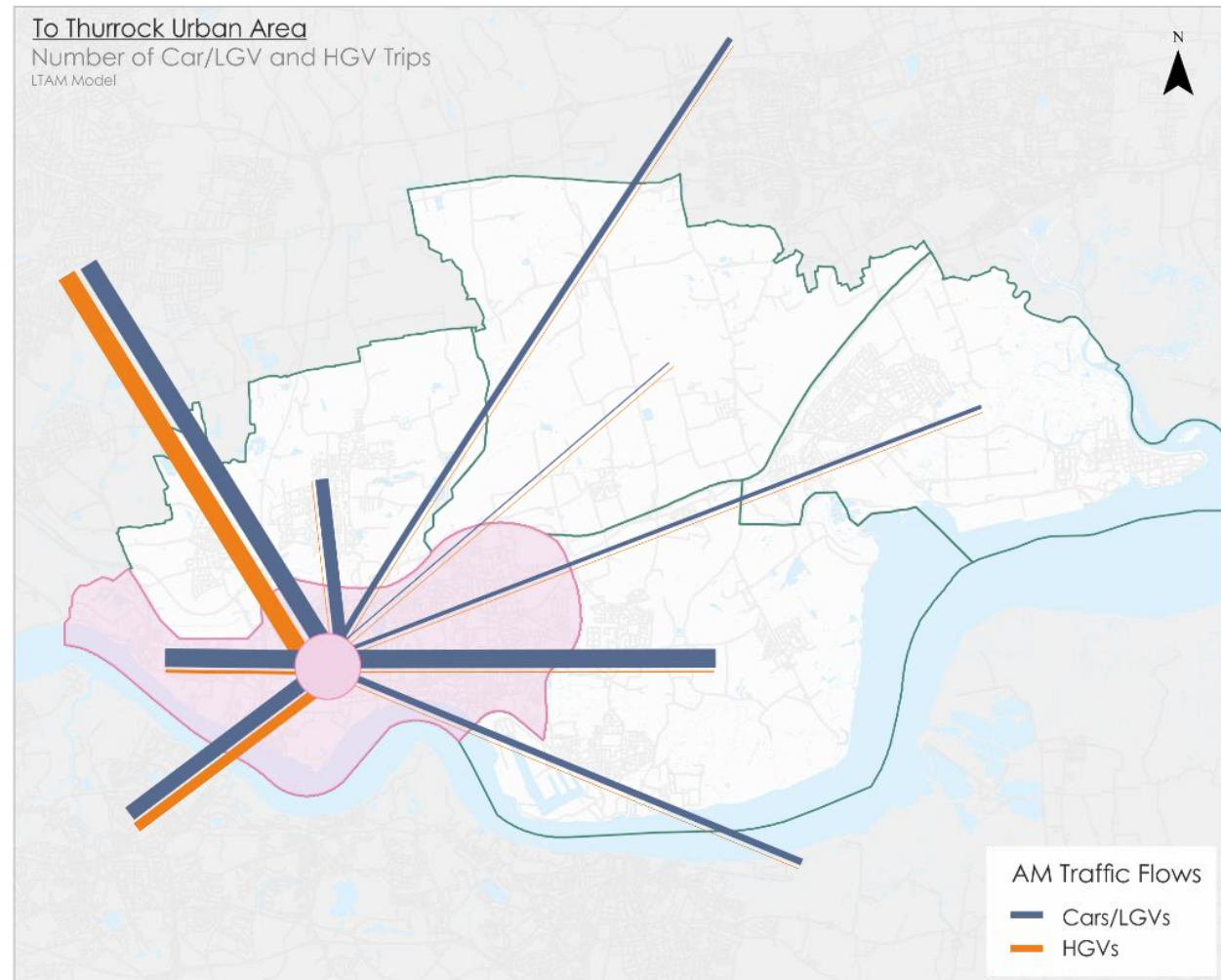


HGV Movement

393. The Lower Thames Area Model cordon model has been used to analyse trips to and from the spatial areas within Thurrock and movement to and from outside of Thurrock in the north west, north east, south west and south east. The map shows the zones modelled and has been used to analyse HGV movement.

394. This map illustrates car/LGV travel and HGV travel to The Thurrock Urban Area. Travel to this area comes mostly from internal trips, the southern area, and outside of Thurrock from the north and south western areas.

395. There is high HGV movement to the area, with a total of 1467 HGVs travelling to the area in the AM peak hours (20% of all traffic travelling to the area). Approximately 85% of HGV trips come from outside of Thurrock.



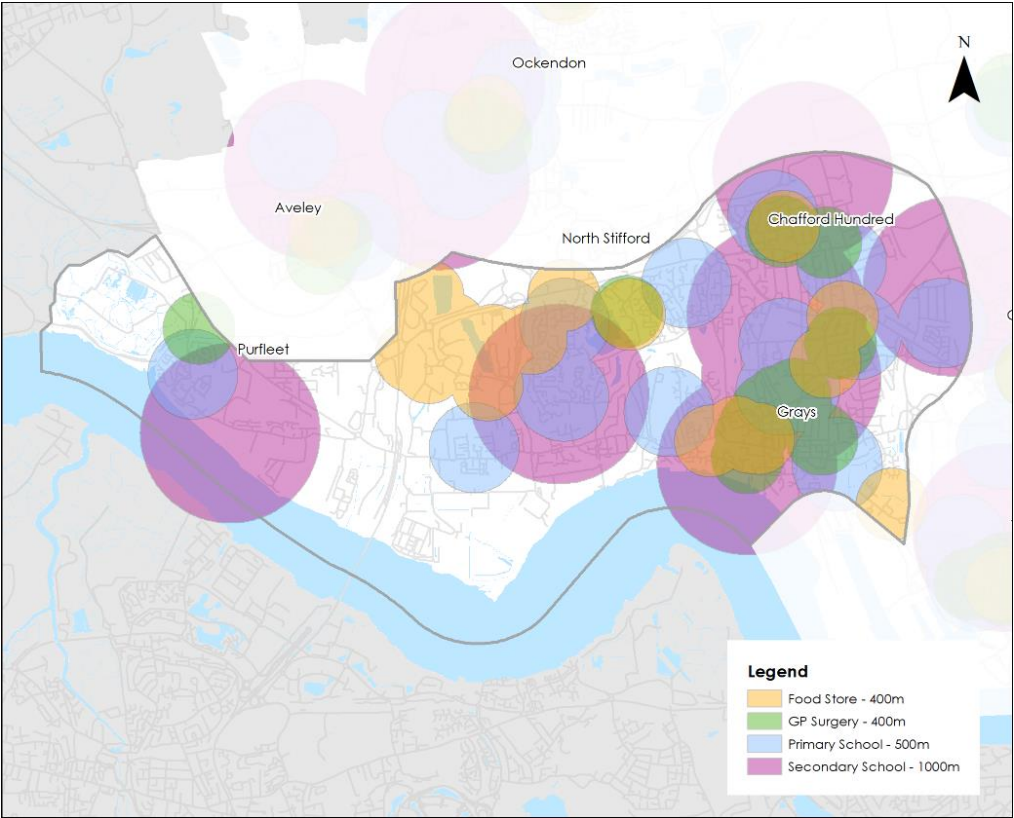
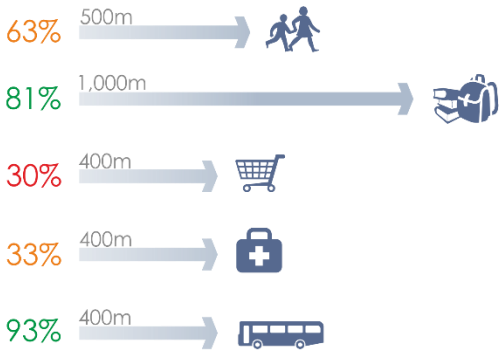
Accessibility to Local Facilities

396. The Thurrock Urban Area has good accessibility to bus stops and secondary schools, which are located throughout the area.

397. There is reasonable accessibility to primary schools, particularly surrounding Grays and Chafford Hundred, with fewer primary schools located further west towards Purfleet and South Stifford.
398. Similarly, there is average accessibility to GP surgeries, which are primarily located to the east of the area, and reduced accessibility in the central parts of the area.

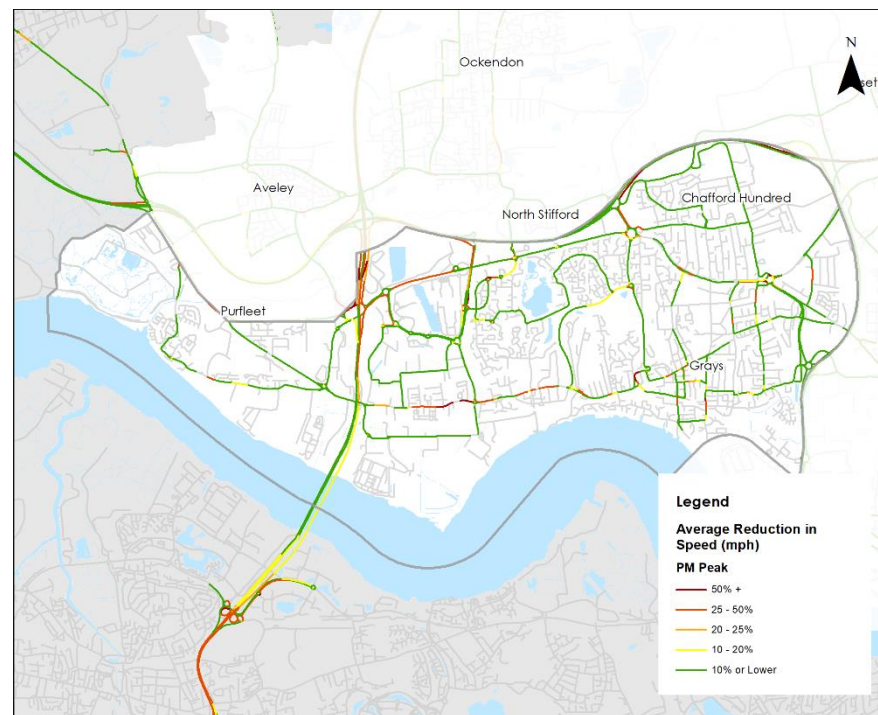
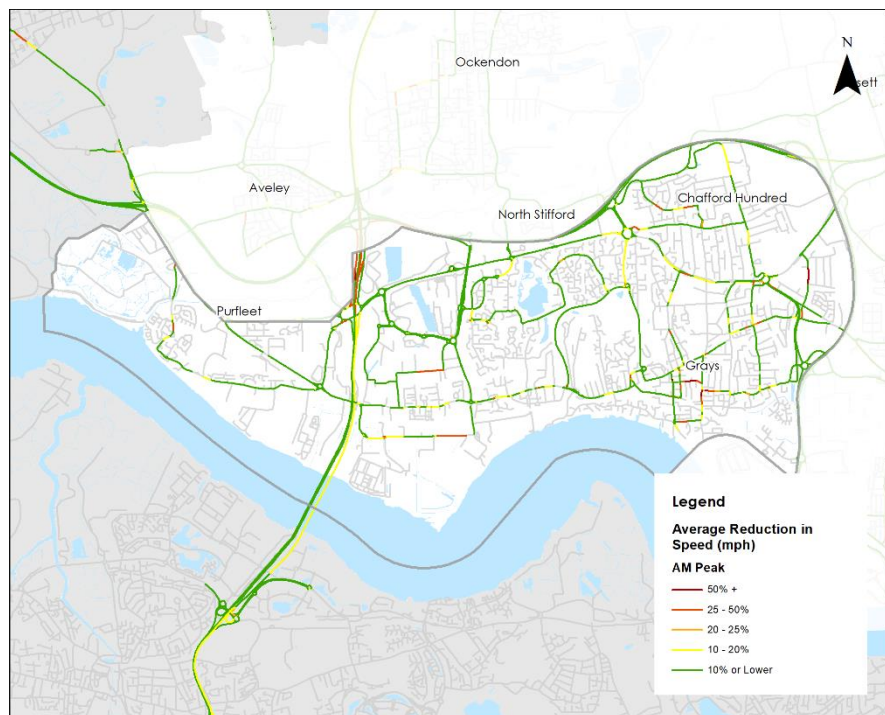
399. Accessibility to local food stores is low, with only 30% of the population able to walk to a food store within 400m. There is limited accessibility to food stores in Purfleet and South Stifford.

Accessibility to Local Facilities in Thurrock
Thurrock Urban Area



Average Delay – AM and PM Peak

400. Trafficmaster speed data has been provided by Thurrock Council to analyse the difference in speeds between interpeak hours and the AM and PM peak hours. A reduction in speeds in the peak hours would indicate delay on the road network, either due to volume of traffic or issues at junctions.
401. There is some reduction in speeds across the whole area in the AM peak hour, with more significant delays in some parts of Grays. Most notably, there is delay on the M25 and A282 leading to Queen Elizabeth II Bridge. Highways England predicts that the creation of the Lower Thames Crossing would reduce delays and congestion on A282 and around the Dartford Crossing.



402. There is considerably more delay in the PM peak hour, particularly on the M25 between junction 30 of the M25 and Queen Elizabeth II Bridge. There is further reduction in speeds on London Road travelling between Grays and the M25, as well as along the Arterial Road West Thurrock north of Lakeside.

Key Transport Links

Road Network and Bus Services:

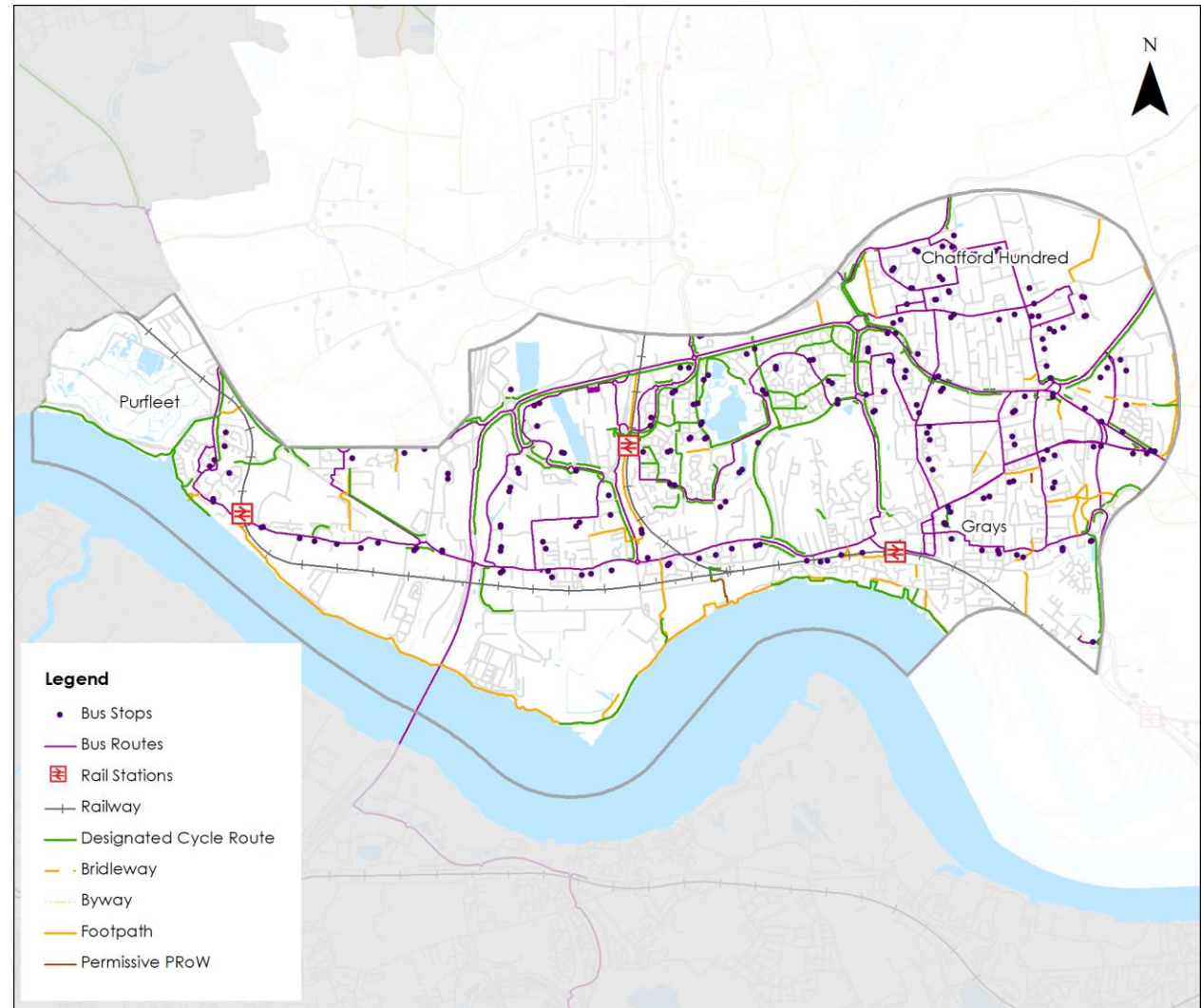
403. The A13 bounds the Thurrock Urban Area to the north, connecting to the M25 at junction 30. Further junctions along the A13 include at the A126 towards Lakeside and at the A1012 to Chafford Hundred. The absence of east facing slips at A13/A126 junction is proposed to be resolved through changes to the junction of A13 with B186.
404. The area is served well by several frequent bus services, including the 33 running every 15 minutes; the 66 and 88 running every half an hour, and the 5/5A/5B services running every half an hour also.
405. 5 bus routes also serve Purfleet, including the 22 and 44 running every 20 minutes.

Rail Services:

406. The area has three rail stations; Grays, Chafford Hundred and Purfleet, providing direct connections across Thurrock as well as to Rainham and Dagenham to the west and Upminster to the north

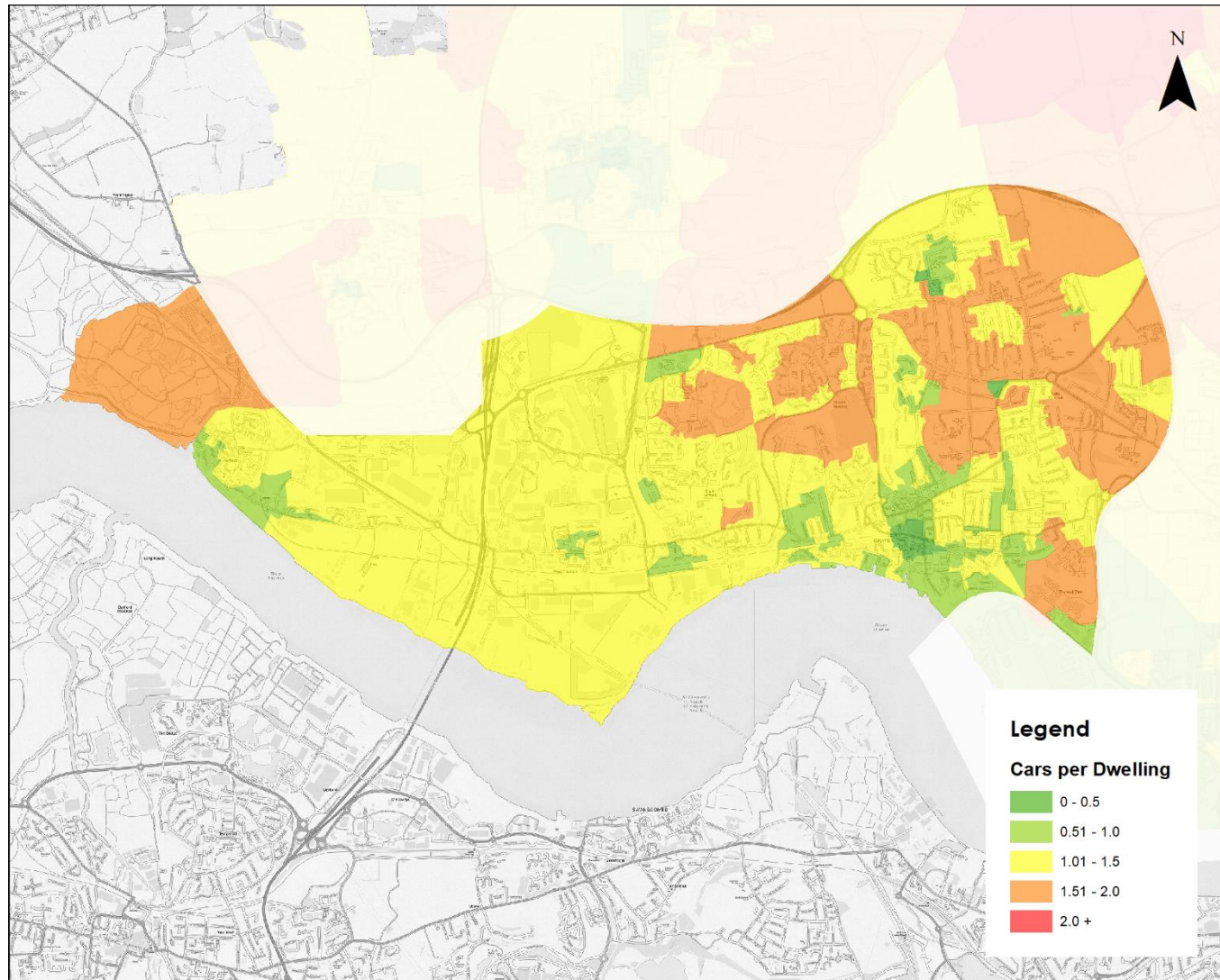
Walking and Cycling Infrastructure:

407. There are designated cycle routes located around Chafford Hundred, including around Chafford Gorges Nature Park. Further cycle infrastructure is provided around Purfleet.
408. There are fewer Public Rights of Way in this area, with notable walking routes adjacent to the River Thames in the south, and a north-south link adjacent to Lakeside.



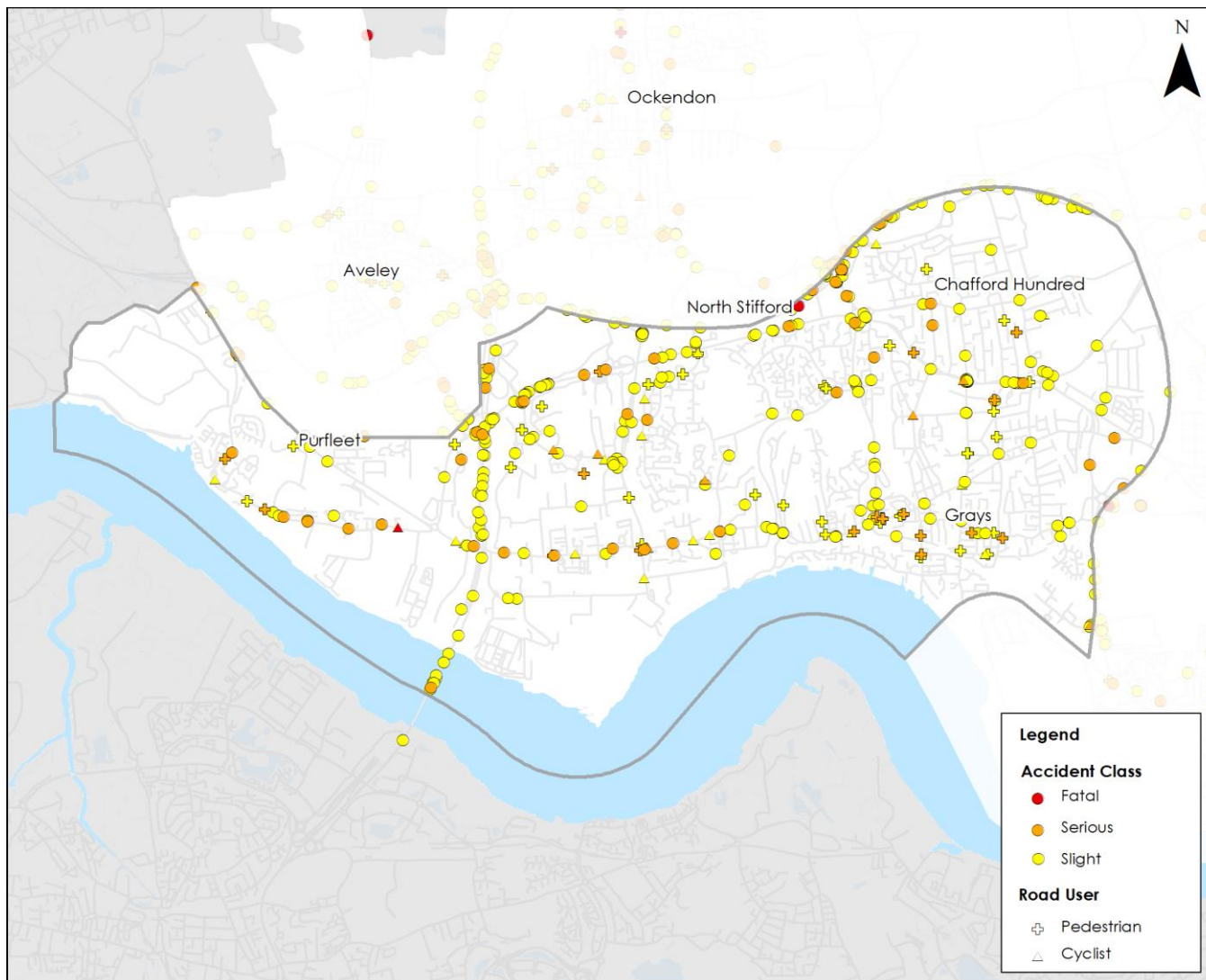
Car Ownership

409. Car ownership is lower in this area than in other parts of Thurrock; most notably in areas of Grays with 0 – 0.5 cars per dwelling.
410. There is higher car ownership in Purfleet and areas around Little Thurrock and Chafford Hundred.



Accident Data Overview

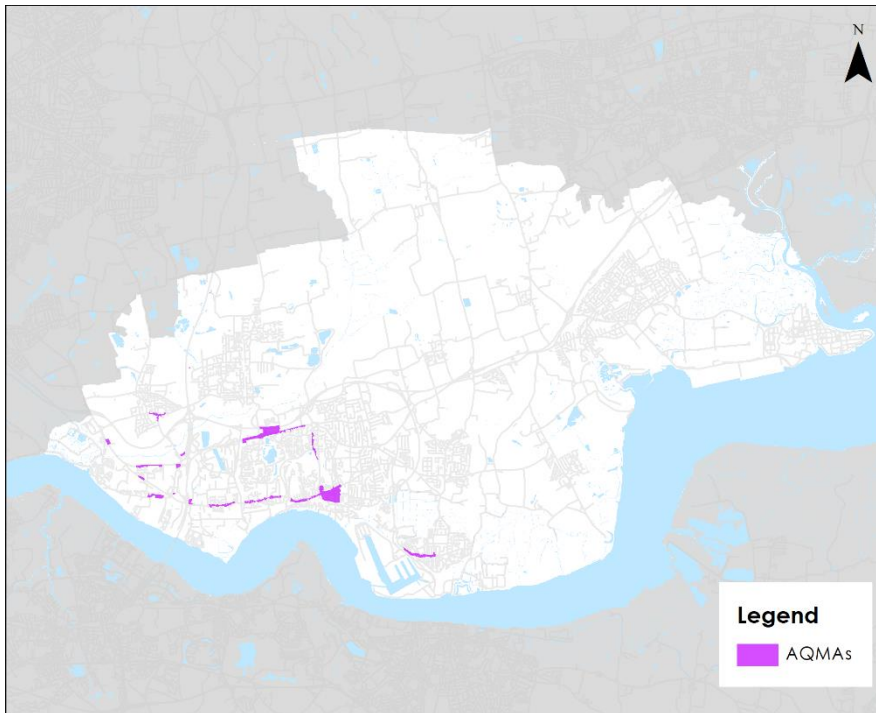
411. This map shows slight, serious and fatal accidents recorded over a three year period in the Thurrock Urban Area using data provided by Thurrock Council.
412. There was a total of 350 road traffic accidents across the area between 2017 and 2019, with 2 of these a fatal accident (1%), 66 serious (19%) and 282 slight accidents (81%).
413. Several accidents in the area involved vulnerable road users, with 30 involving cyclists (9%) and 53 involving pedestrians (53%). Many of these accidents are located in and around Grays.
414. Two fatal accident were recorded across the three year period; one on the A13 in 2017 involving a private car, near the junction with the A1012. The second fatal accident occurred in 2018 and involved a cyclist fatality, on London Road in Purfleet and the junction with Vellacott Close.



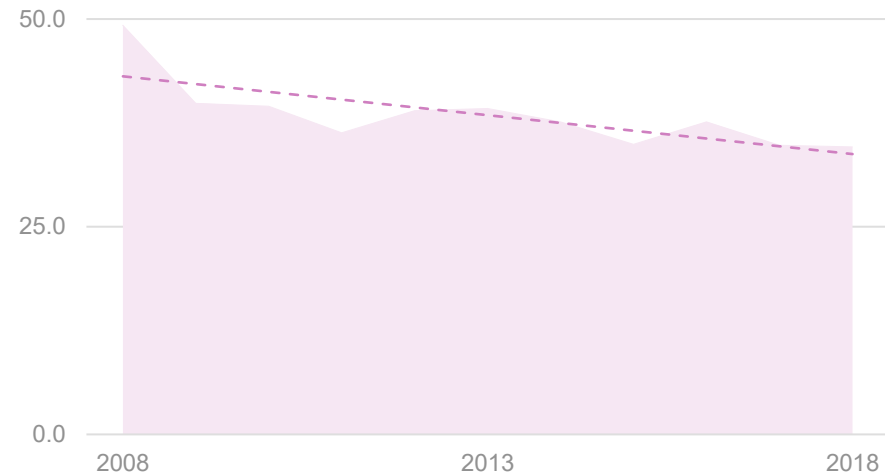
Air Quality Trends

415. Several air quality management areas are located in the Thurrock Urban Area:

- Surrounding Crown Road and Orsett Road in Grays;
- Sections of London Road between Grays and the M25;
- Sections of London Road and Arterial Road in Purfleet;
- Significant parts of Arterial Road West Thurrock between the A126 and the A1012; and
- A section of A1012 Elizabeth Road.



Annual Mean Concentration of NO₂ (µg/m³)



416. Air quality data for this area has been provided by Thurrock Council, taken from NO₂ diffusion tube sites across Thurrock. Data has been analysed between 2008 and 2018 to understand air quality trends over the ten year period*.

417. The data shows that the annual mean concentration of NO₂ has steadily decreased over the ten year period, with an average of 38.4 µg/m³ across all years. This is almost 50% higher than the national average concentration of NO₂ (19.6 µg/m³, according to Ricardo Energy & Environment statistics provided by gov.uk).

*Not all diffusion sites gathered data every year, with some sites added in later years, providing a broader range of data across the area. As such, trends should be viewed as a whole over the 10-year period, not by a year-to-year basis.

Overview of deprivation, health, age & education

418. These maps show an overview of deprivation, health, age and education levels in Chadwell St Mary, Tilbury, East Tilbury & Linford.

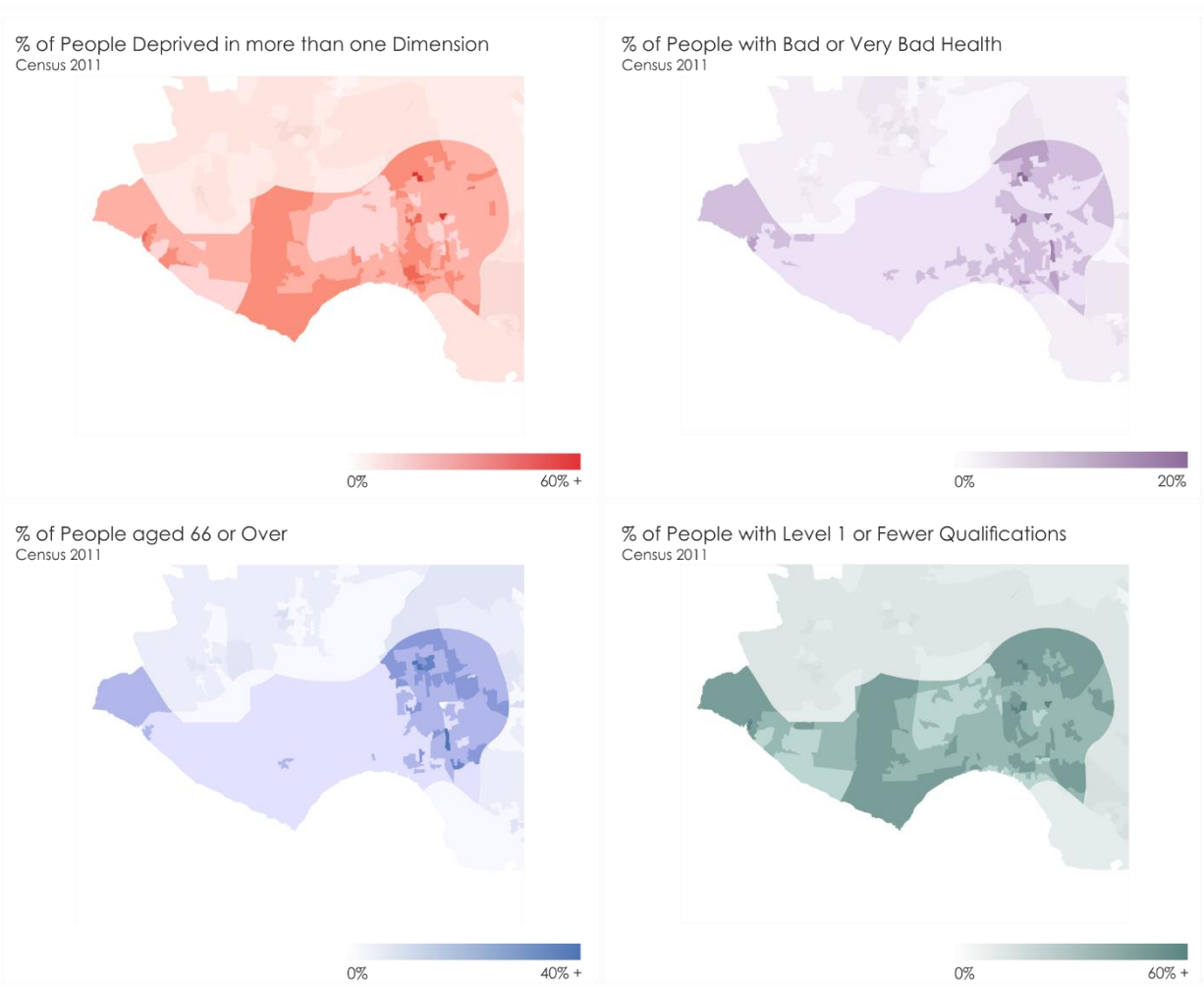
419. Deprivation – 24% of people are noted as deprived in more than one dimension, with small areas of increased deprivation in areas in Grays and Chafford Hundred.

420. Health – health measures are mostly good across the area, with a mean of 4% of the population in the area with bad or very bad health. Similarly to deprivation, some areas in Grays and Chafford Hundred have increased health issues.

421. Age - There is an average of 10% of population in the area over 66. This is higher in the eastern parts of the area.

422. Education – 39% of the population in the area has level 1 or no qualifications,

Thurrock Urban Area



9. Summary, Conclusion and Next Steps

9. Summary, Conclusion and Next Steps

423. Data has been reviewed at the Borough-wide level and for the five geographic focus areas from a series of national and regional datasets and locally generated data. Where feasible, historic data (such as Census 2011) has been factored from more recent data to provide a proxy for current trends. In time this data should be replaced by more recent empirical data.

424. The following headlines against the Planning Policy Guidance topics are observed:

425. Accessibility – Thurrock has a mixed geography and demographic which presents differing challenges to access essential services. In urban areas the largely younger population have good access by environmentally sensitive active travel means to a robust range of service whilst in rural areas the older population is more remote from services and relies more on car travel.

426. Congestion – the more highly populated urban areas attract large movements of people and goods on the constrained travel network sharing with

public transport, cycling, walking, cars and goods vehicles. That network experiences delays through the day at key movement corridors which can interfere with the reliability of public transport services.

427. Mobility – The mix of demographics and deprivation brings challenges to people's mobility yet there are good opportunities for local employment and access to businesses in London and Essex by rail or car. The area is bound by the severance effects of the river Thames and M25, however, these corridors bring opportunities for the movement of people and goods into and out from Thurrock.

428. The spectre of the Lower Thames Crossing is unsettling to the local travel network but could bring relief to areas of congestion around the M25/A282 and open further mobility across the river if delivered correctly.

429. Safety – Whilst there are pockets of road safety concerns, the injury crash trends within

Thurrock are improving and are below the national average, representing a strong base from which to build.

Neighbourhoods are understood to be safe to allow a growth in active travel and public transport use which could be

430. Pollution, carbon reduction and health – Air pollution is shown to be improving across Thurrock but the more urban environments are still significantly above the national average. Initiatives to encourage moves to less polluting means of travel need to be extended which should complement emerging development growth in the commercial and residential markets across Thurrock.

431. Affordability – The residents and business of Thurrock have good access to active and sustainable travel options and to employments but the pockets of deprivation can make these unaffordable to some. Future commercial growth within Thurrock and a change in the way in which people live following the pandemic could help to increase the affordability of

movement within Thurrock with more and improved local employment

432. The Next Steps following this study should be to:

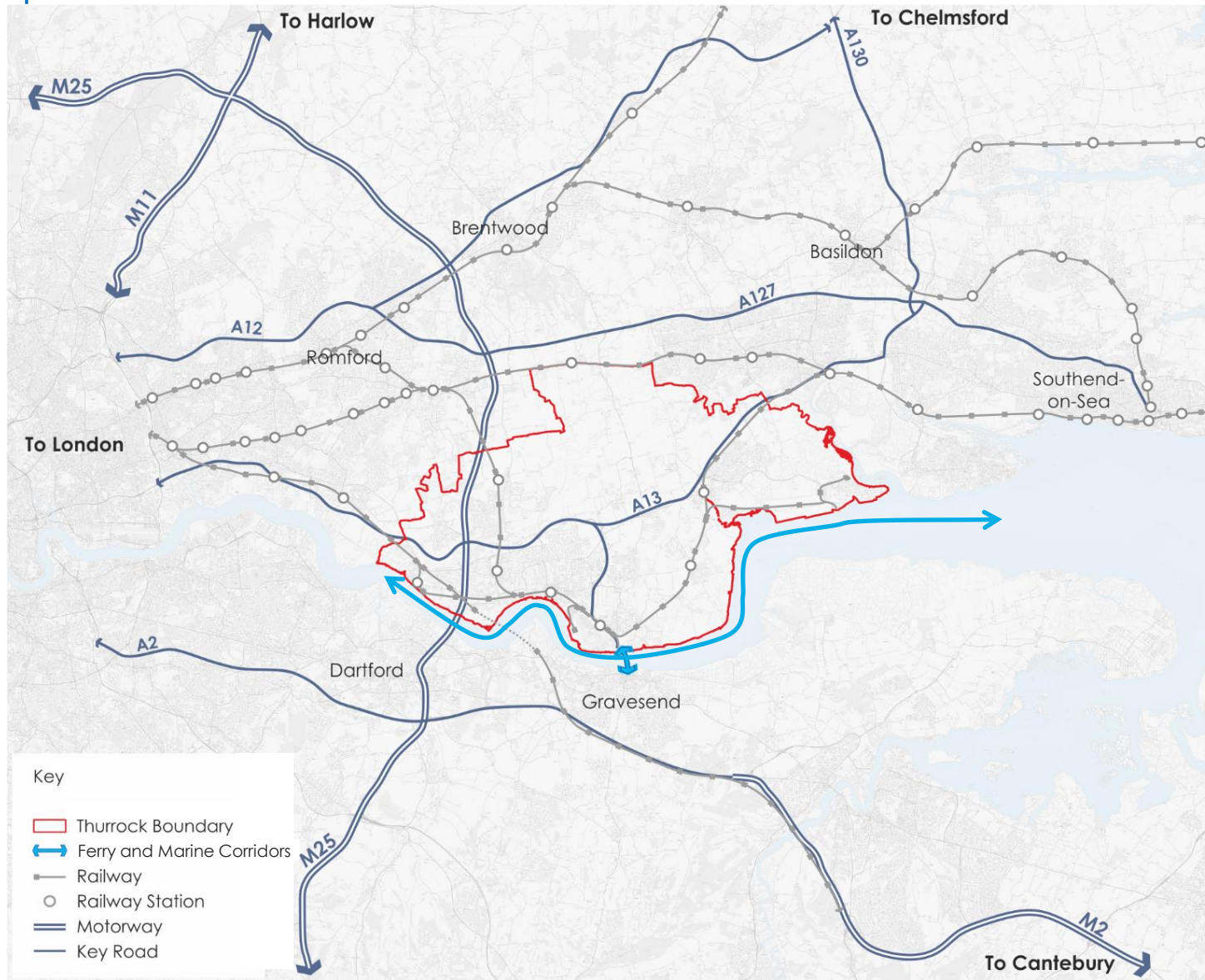
- understand more fully the opportunities for a fuller strategy for active travel and public transport infrastructure and services to promote choice for movement by all sectors of the community
- target improvements in movement of people and goods across Thurrock whilst not hindering movement to employment and trade markets outside
- ensure high standard local services and sustainable infrastructure are provided to supplement local growth in development
- pursue initiatives to encourage the move away from polluting vehicles and inefficient traffic flow to allow the air quality to improve across Thurrock and engender respect for the environment.

Appendix A – Boroughwide Data

Appendix A1. Accessibility data



Key Transport Links

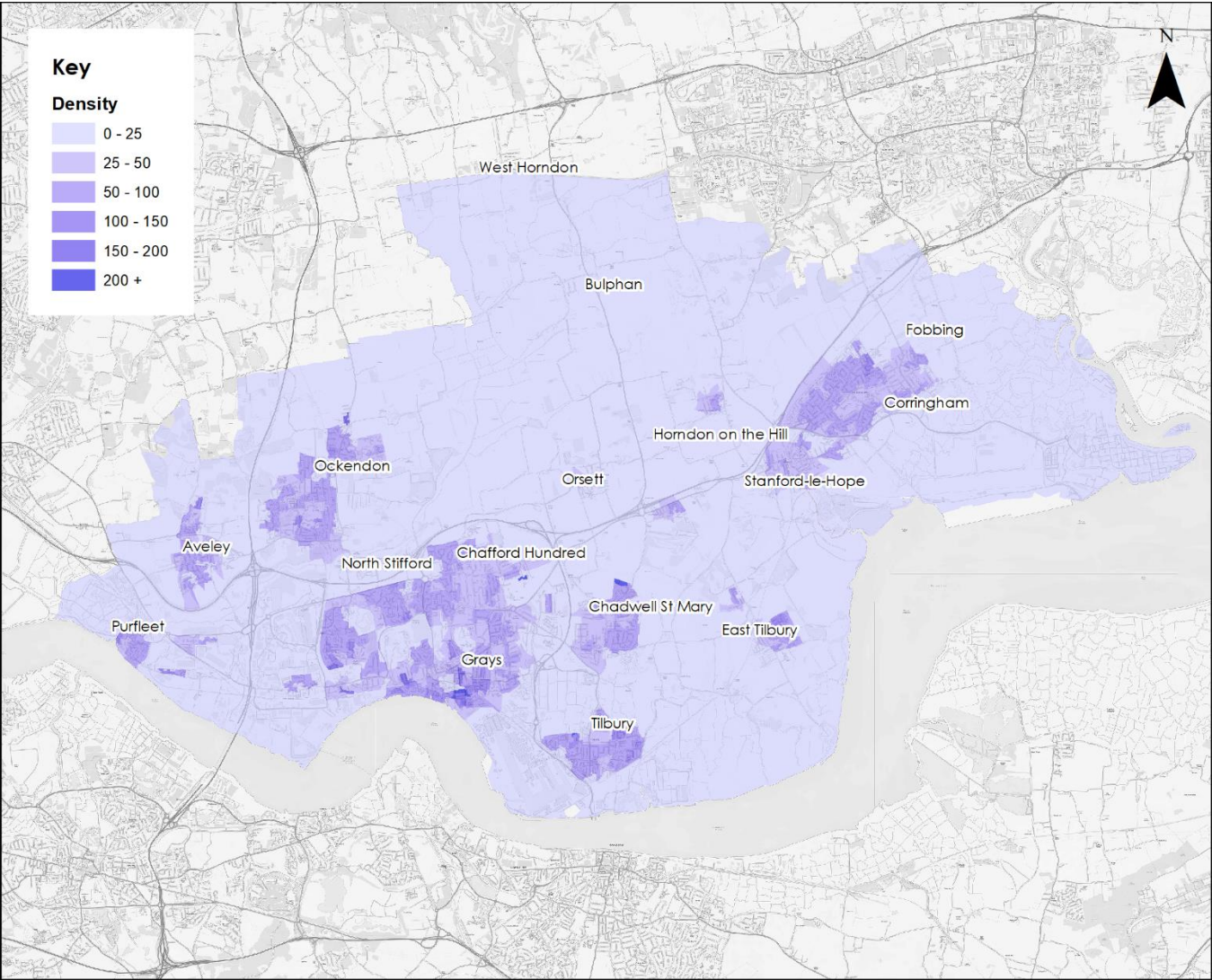


Urban Density

The adjacent diagram indicates the current clustering of residential development within Thurrock. It identifies nine key locations: Purfleet, Aveley, Ockendon, Gray and Chafford Hundred, Tilbury, Chadwell St Mary, East Tilbury, Stanford-le-Hope and Corringham.

The retail and business zone of Purfleet and Lakeside and the M25/A282 corridor create a separation between Purfleet and Aveley residential areas and Grays and Chafford Hundred.

Whilst the corridor of A1089 and the retail and industrial environment around it create a western boundary to Chadwell St Mary and Tilbury, the areas to the east are lightly populated with East Tilbury, Stanford-le-Hope and Corringham being surrounded by open land.



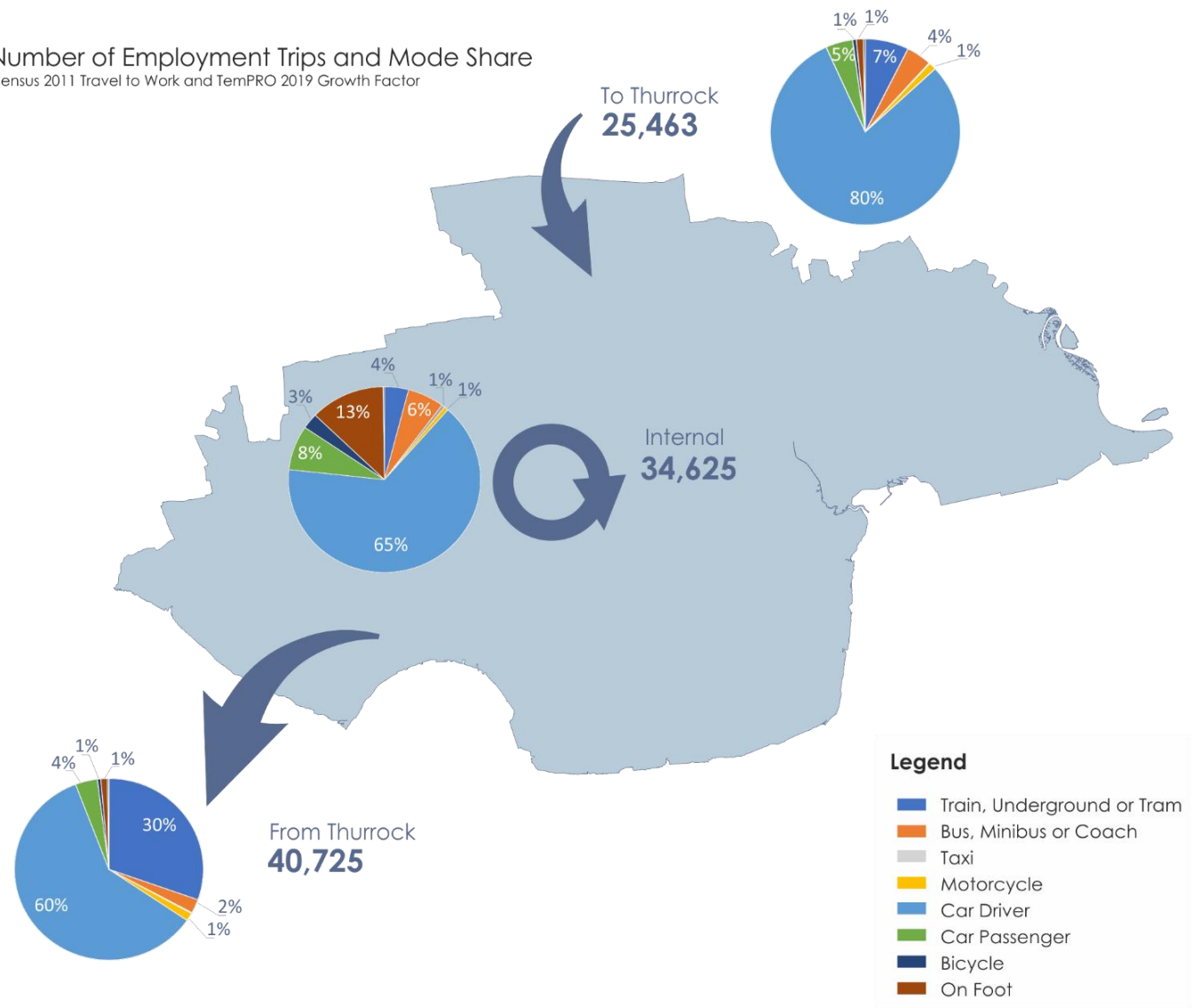
Employment Trips – Mode Share

This data is taken from Office of National Statistics Journey to work data gathered from the 2011 census and represents all daily work journeys made within, to and from Thurrock.

Around 75% work related journeys to, from and internally in Thurrock are made by private car.

Rail makes up a significant proportion of employment journeys from Thurrock, around 25%.

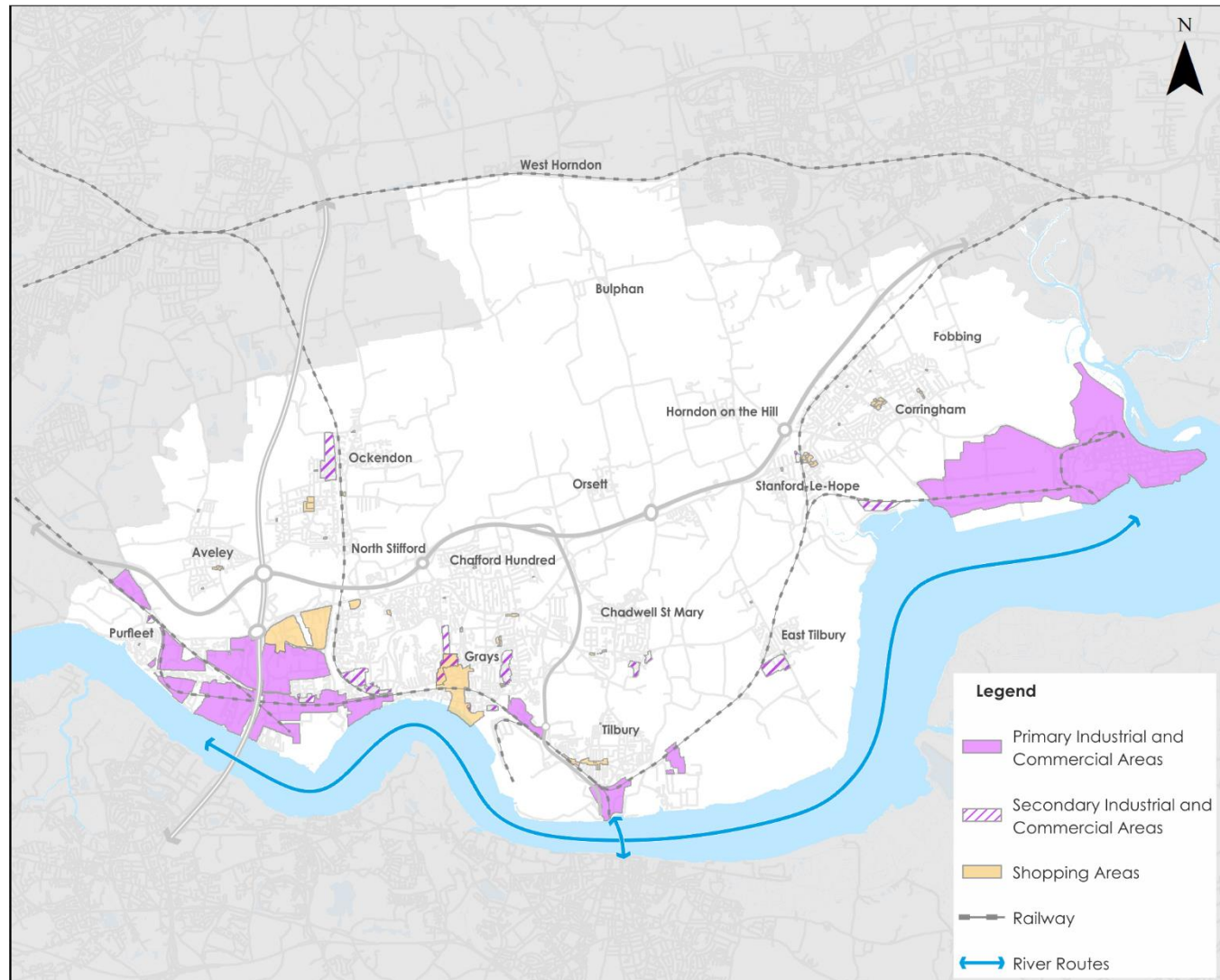
Number of Employment Trips and Mode Share
Census 2011 Travel to Work and TemPRO 2019 Growth Factor



Employment Areas

This diagram illustrates the key employment districts, industrial zones and retail centres within the borough.

Primary industrial and commercial land uses are scattered across urban areas in the Borough. Shopping areas are concentrated in town centres and urban areas, the large shopping area to the west is the Lakeside Shopping Centre.

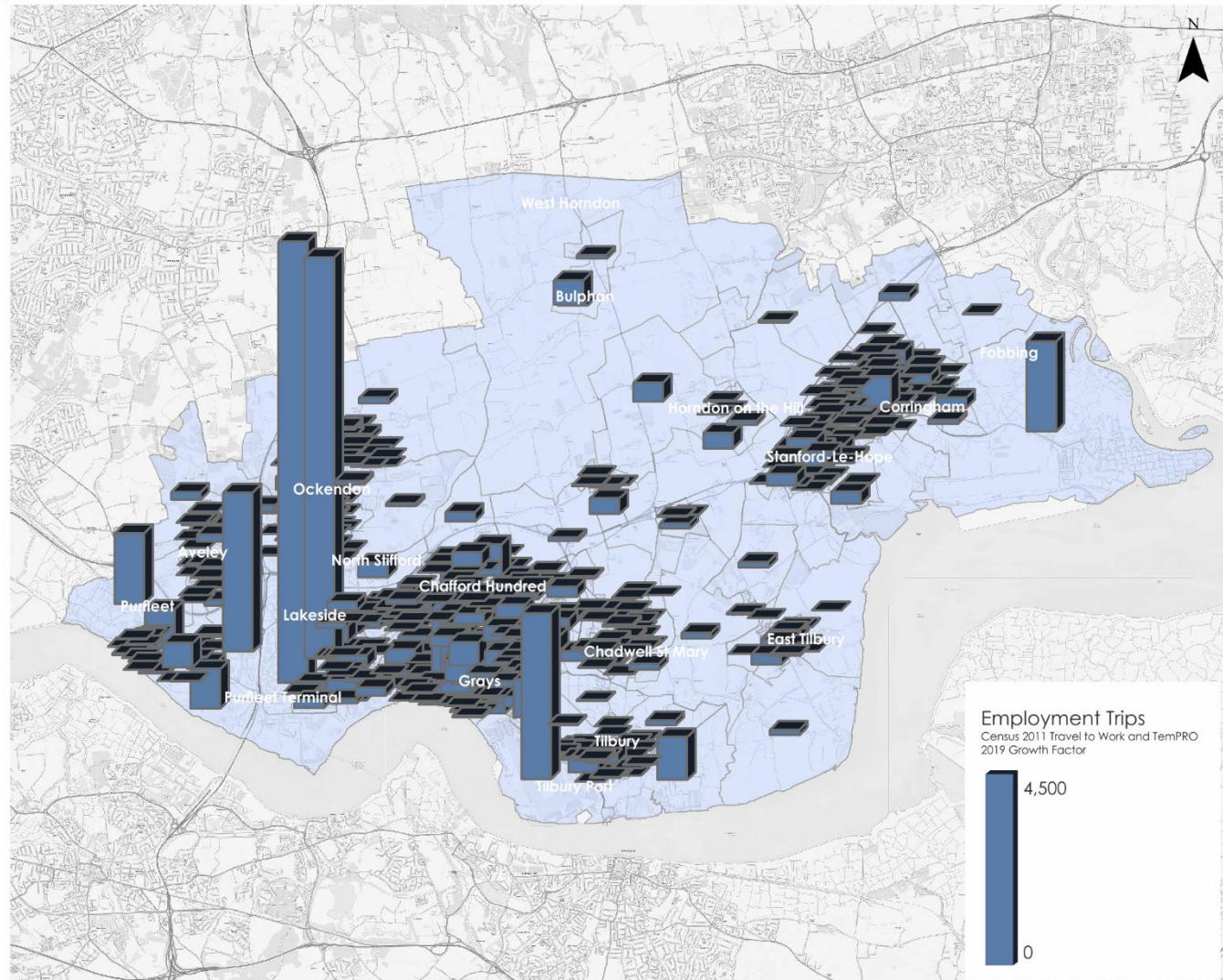


Employment Trips – Destination

This data is taken from Office of National Statistics Journey to work data gathered from the 2011 census and projected up to a 2019 estimation using the Tempro growth data set which predicts increases in movement between two comparator years.

The height of each stack represents inbound daily work journeys made to destinations within Thurrock, both from within the authority and from outside Thurrock.

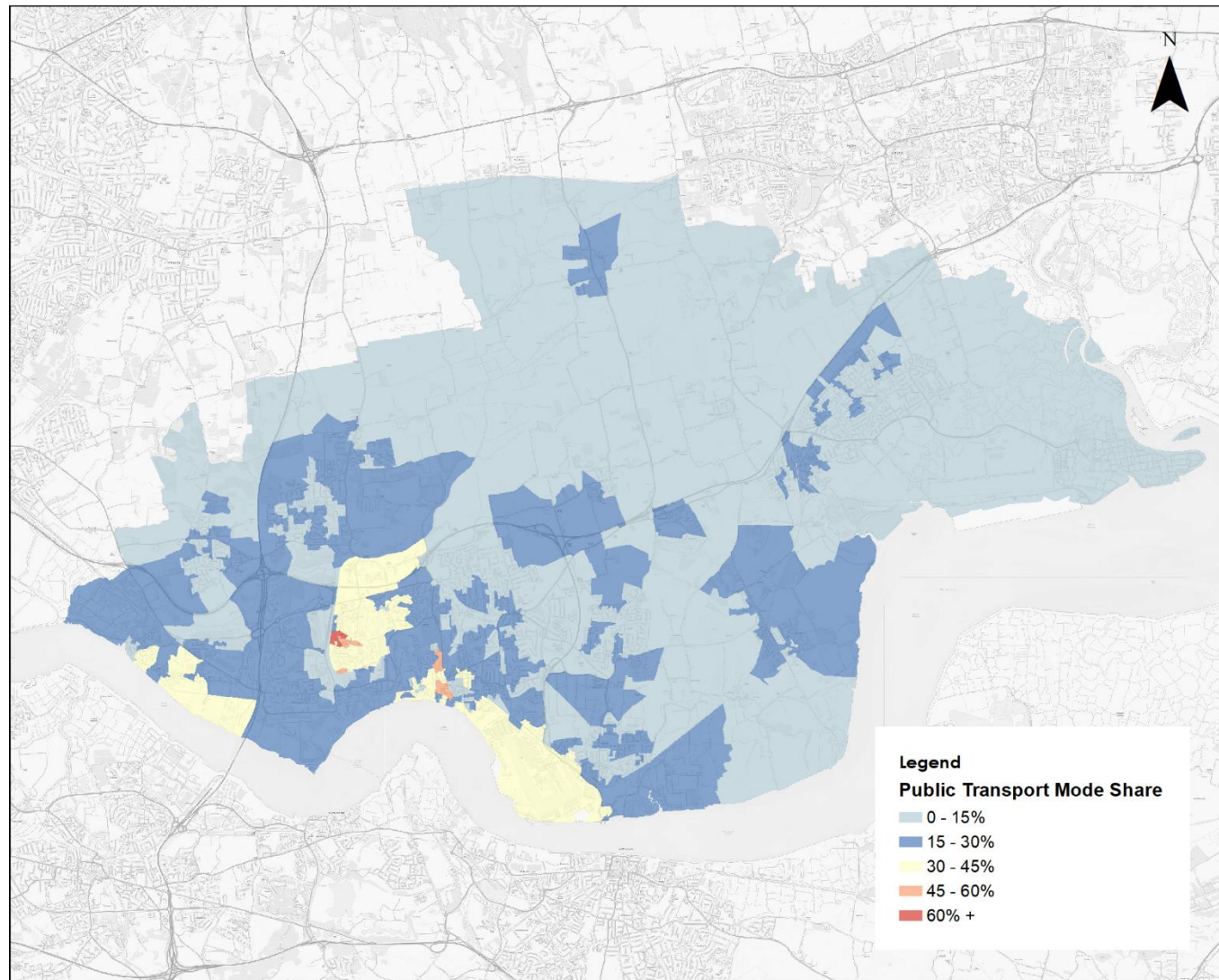
Analysis shows employment trips are concentrated on several key areas in Thurrock, mainly the terminal and port areas: Purfleet, Tilbury and London Gateway. The employment and retail centre of the Lakeside basin is a clear attractor to workforce journeys.



Public Transport mode share – bus and rail combined

This map illustrates the proportion of daily trips originating each output area in Thurrock that use public transport (bus, ferry and/or rail) as the main mode to travel to work on an average weekday. This data is taken from Office of National Statistics Journey to work data gathered from the 2011 census

For all journeys from Thurrock data taken from the NTS indicates that 8% of journeys within, into or out of Thurrock use public transport. This compares with 9.1% share of journeys across England.

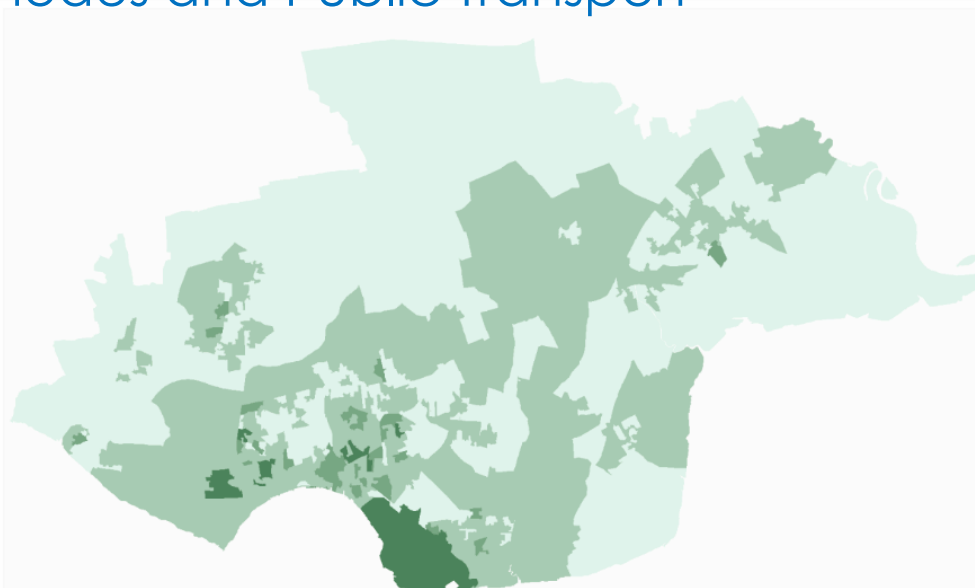


Travel by active modes and Public Transport

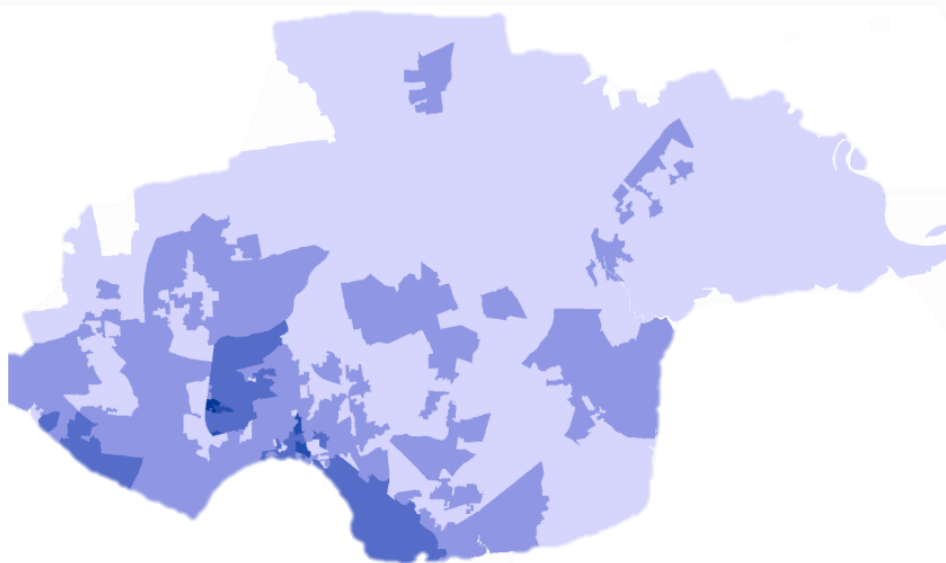
This data is taken from Office of National Statistics Journey to work data gathered from the 2011 census and represents all daily work journeys made from Thurrock. This dataset was chosen as it provides the most detailed analysis available of modal choice by location, and demonstrates the dependency of active modes and public transport on location.

Analysis of mode share trip data for both work and other journey purposes shows that active travel (walking and cycling) and public transport makes up a significant proportion of trips in Thurrock urban areas. Across the Borough as a whole the average is 31%, which compares with 37% nationally for England.

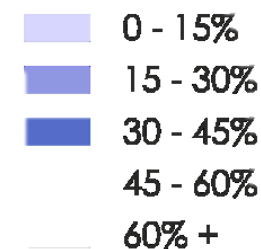
Both datasets show similar geographic trends with active travel and public transport use most prevalent around the more urban areas. Less predicted is the greater than 5% active travel in the more rural areas along the north to south central band of the borough.



Active Travel Mode Share
Census 2011 Mode Share



Public Transport Mode Share
Census 2011 Mode Share

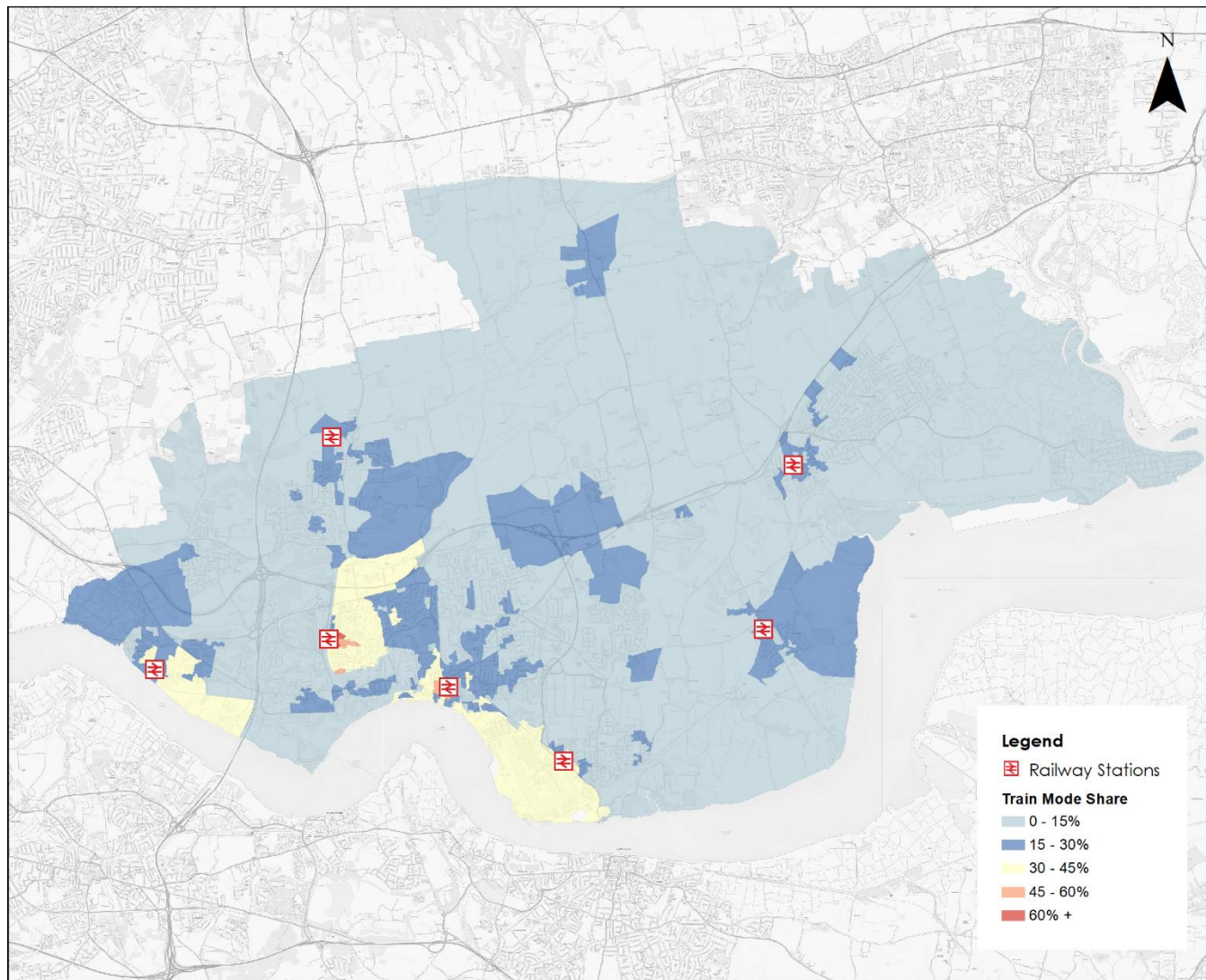


Rail Usage in Thurrock

This map illustrates the proportion of daily trips originating in Thurrock that use rail as the main mode on an average weekday. This data is taken from Office of National Statistics Journey to work data gathered from the 2011 census

This corresponds with information gathered by the rail operator C2C through online surveys which indicated the main mode of travel to the stations within Thurrock was on foot. The percentage of journeys on foot to stations (from surveys undertaken in 2015) was around 60-70%

Rail usage for journeys to work from homes within Thurrock varies with proximity to higher frequency service and station facilities correlating closely with rail modal share. In areas where people are able to easily walk to the station the highest mode shares are over 60% for journeys to work.



Rail Usage in Thurrock

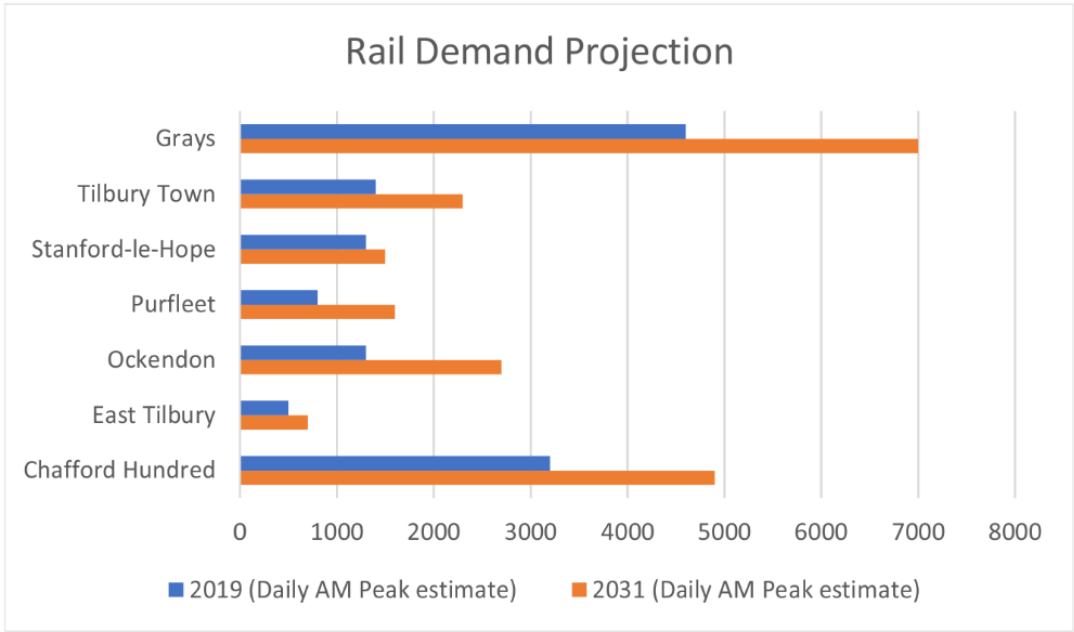
The average rail mode share for employment trips from Thurrock to areas outside of Thurrock is 29%. Rail usage for journeys to work from areas outside of Thurrock is a lot lower, at 6% modal share.

For all journeys from Thurrock data taken from the NTS indicates the modal share for rail is 1.8%, which compares with a national average for England of 2.2%

Rail travel in Thurrock has grown consistently over the past 15 years, with a growth of 79% in patronage over that period. This compares with a average across Great Britain of 95% growth in patronage.

Source: Office of Rail and Road, formerly Office of Rail Regulation

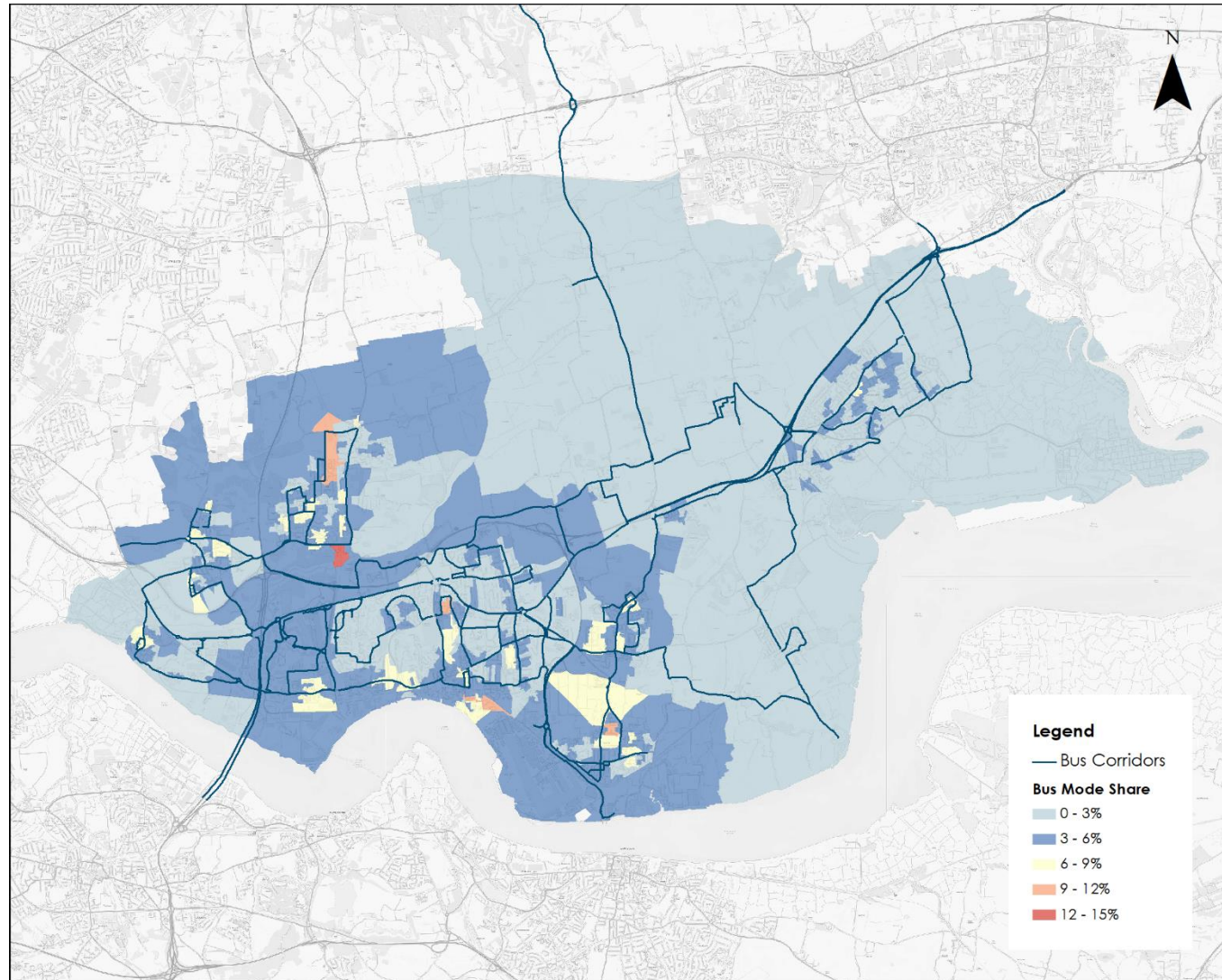
Railway Station	2019 Demand	2019 (Daily AM Peak estimate)	2031 Demand	2031 (Daily AM Peak estimate)	AM Peak % Increase
Chafford Hundred	2900000	3200	4400000	4900	53%
East Tilbury	450000	500	600000	700	40%
Ockendon	1150000	1300	2400000	2700	108%
Purfleet	700000	800	1500000	1600	100%
Stanford-le-Hope	1150000	1300	1350000	1500	15%
Tilbury Town	1250000	1400	2050000	2300	64%
Grays	4150000	4600	6250000	7000	52%



Bus Usage in Thurrock

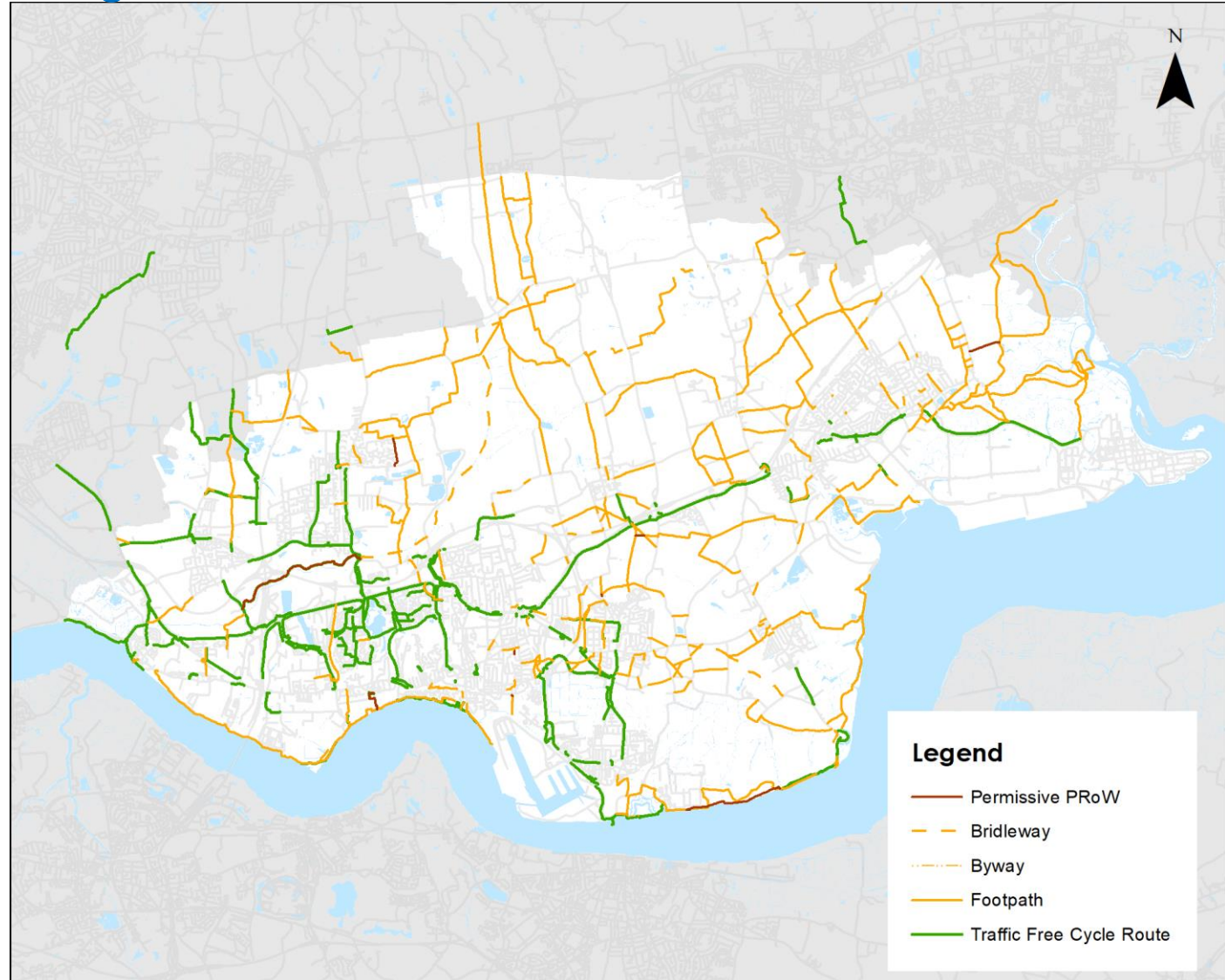
This map illustrates the proportion of daily journeys originating in Thurrock that use a bus as the main mode on an average weekday. This data is taken from Office of National Statistics Journey to work data gathered from the 2011 census. Data giving origin and destinations of journeys by bus for non-work travel is not currently available.

For all journeys from Thurrock data taken from the NTS shows 6.2% of journeys within Thurrock use a bus. This compares with 6.9% share of journeys across England, (although these are disproportionately raised by London), and 5.9% of journeys in Essex as a whole.



Walking, Cycling and Riding network

This map illustrates the cycle and bridleway and Public Rights of Way facilities across Thurrock taken from data provide by Thurrock Council.

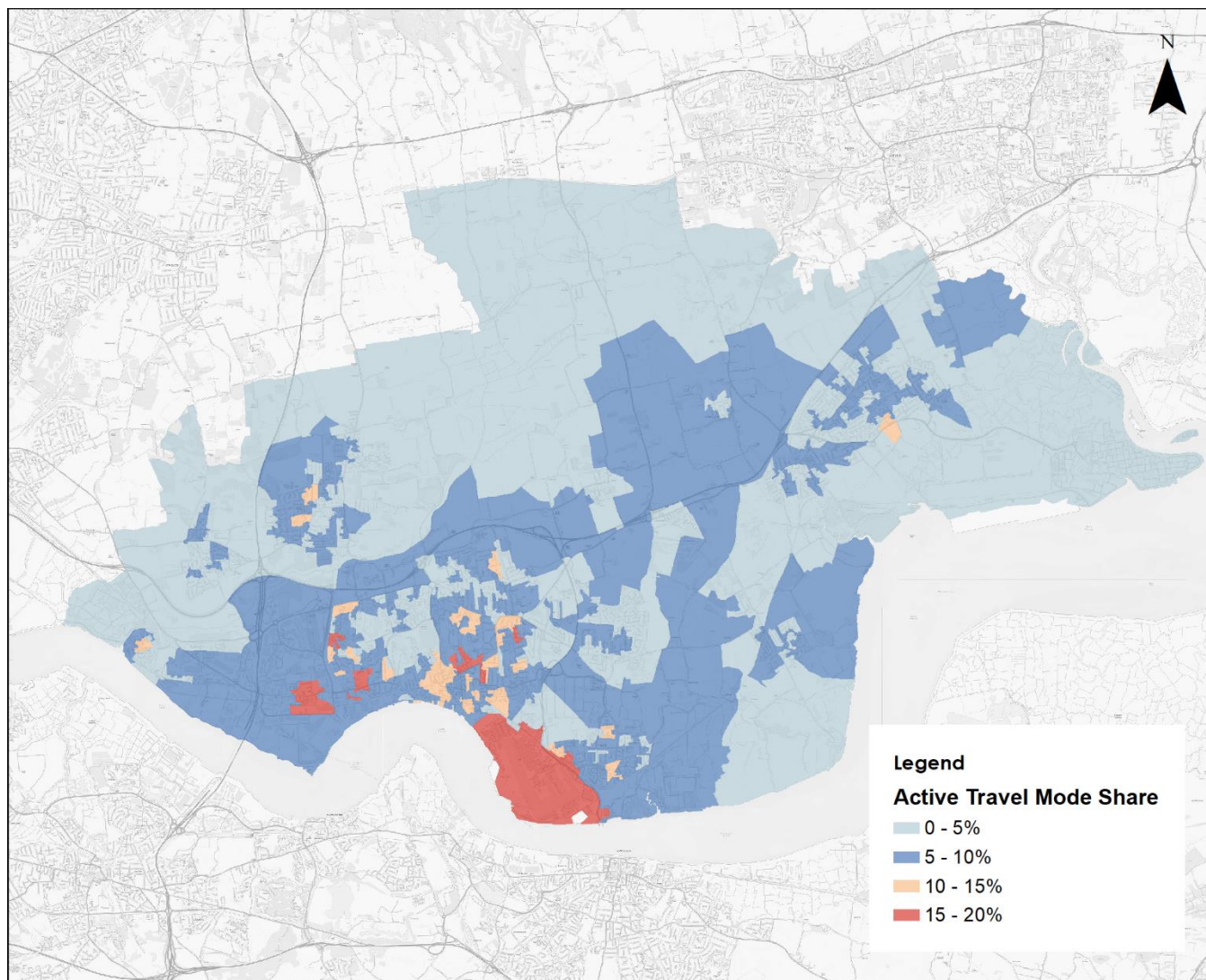


Travel by active modes

This map illustrates the proportion of daily trips originating in Thurrock that are made by active travel modes (walking and cycling) as the main mode on an average weekday. This data is taken from Office of National Statistics Journey to work data gathered from the 2011 census

For all journeys from Thurrock data taken from the NTS shows 22.6% of journeys within Thurrock are undertaken on foot, cycle or horseback. This compares with 34.7% as the average modal share for England.

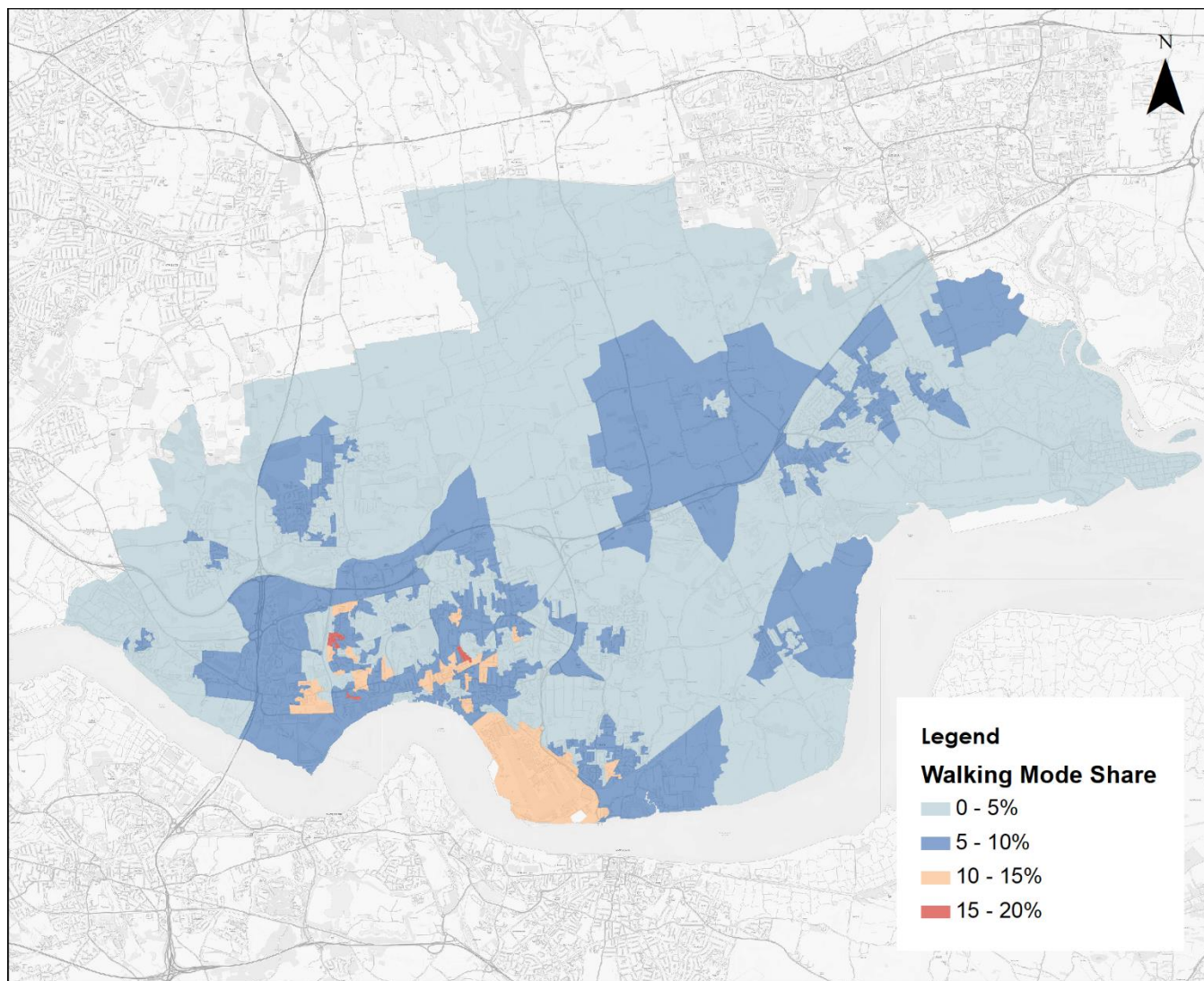
No data is currently available of equestrian activity within the borough.



Walking Mode Share

This map illustrates the proportion of daily trips originating in Thurrock that are made by walking on an average weekday. This data is taken from Office of National Statistics Journey to work data gathered from the 2011 census.

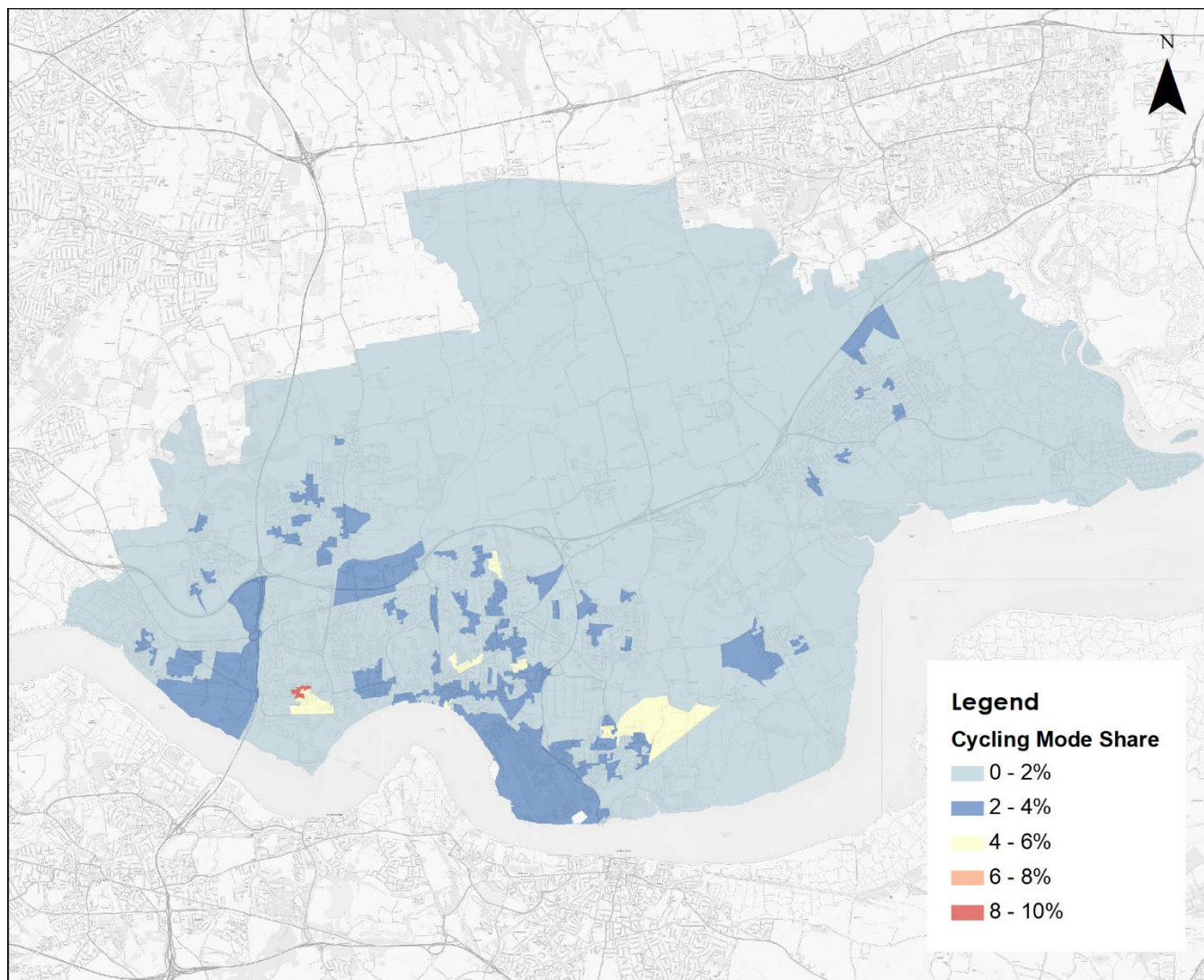
For all journeys from Thurrock data taken from the NTS shows 20.9% of journeys within Thurrock are undertaken on foot. This compares with 26.2% as the average modal share for England.



Cycling Mode Share

This map illustrates the proportion of daily trips originating in Thurrock that are made by cycle on an average weekday. This data is taken from Office of National Statistics Journey to work data gathered from the 2011 census.

For all journeys from Thurrock data taken from the NTS shows 1.8% of journeys within Thurrock are undertaken on foot. This compares with 1.7% as the average modal share for England.



Accessibility to Local Facilities

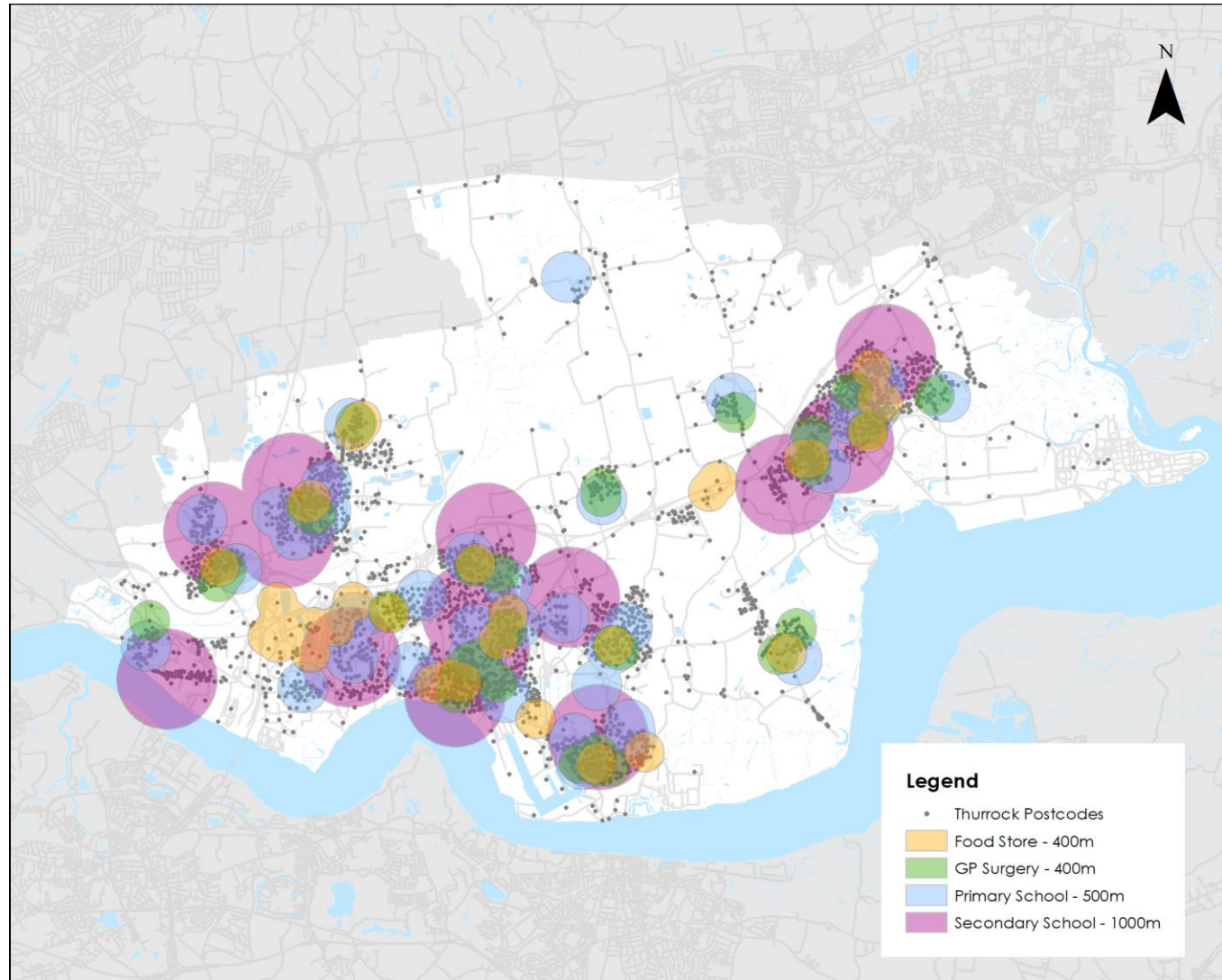
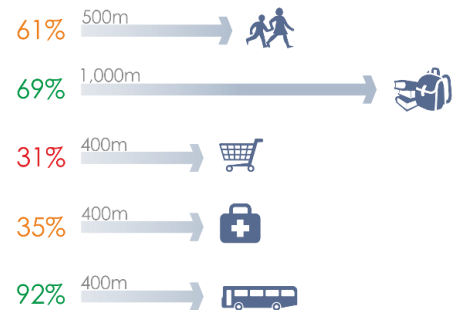
Accessibility to local facilities within Thurrock has been considered using the CIHT *Guidelines for Providing for Journeys by Foot*. This document provides suggested acceptable walking distances to different local facilities.

Thurrock has good walking accessibility to local bus stops, and reasonable accessibility to both primary and secondary schools.

Food stores however are not as accessible, with only 31% of residents within the suggested 400m of a local food store.

The proportion of the population able to access local facilities in the recommended distances is:

Accessibility to Local Facilities in Thurrock



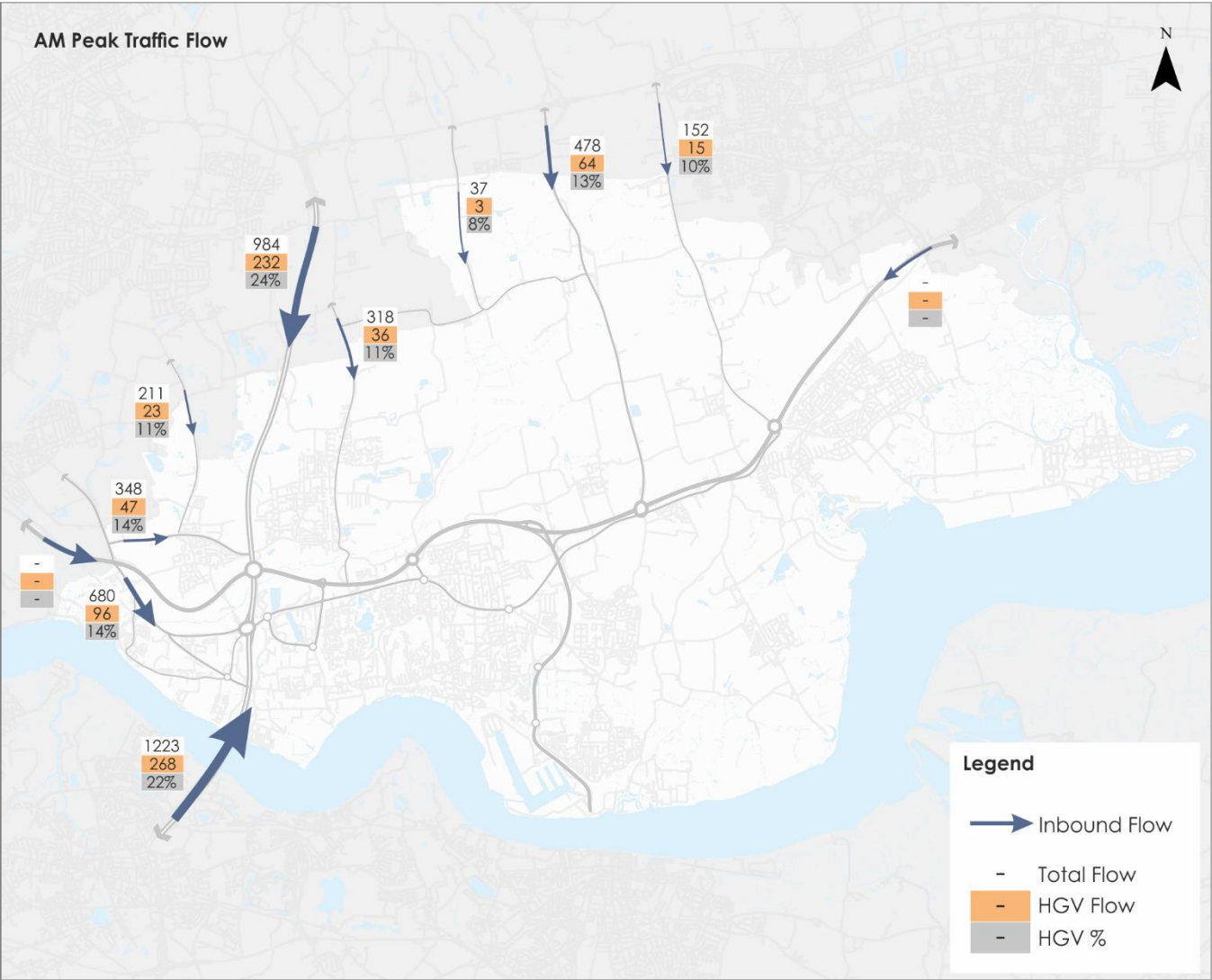
Appendix A2. Congestion data



Morning Peak Hour Traffic into Thurrock

This map illustrates the morning peak hour traffic flows that are destined for Thurrock and proportion of traffic that are Heavy Goods Vehicles (HGVs). This data is taken from a local cordon of the Lower Thames Area Model, developed by Highways England and used to assess the effects of the proposed Lower Thames Crossing.

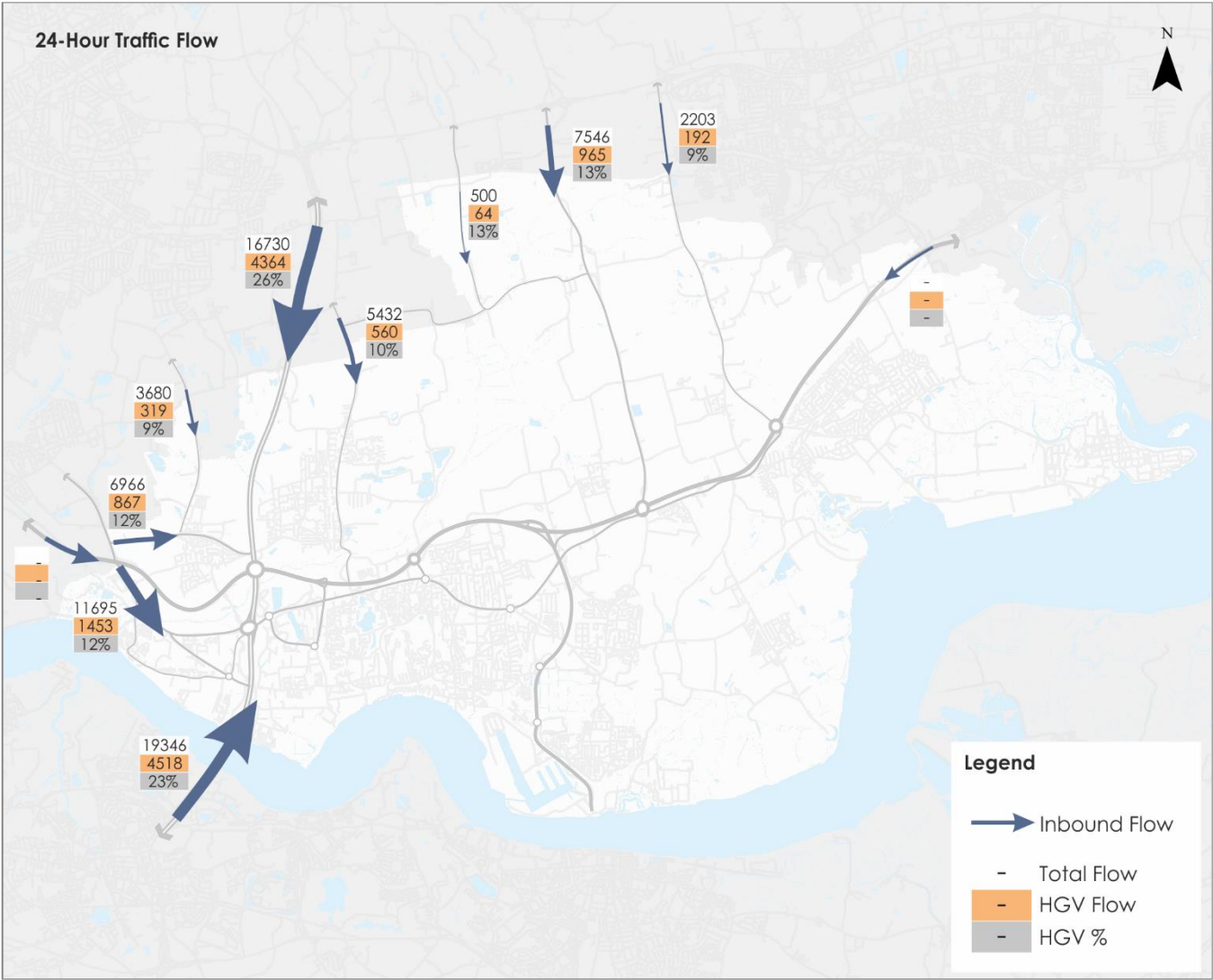
A considerable proportion of traffic come to Thurrock via the M25 motorway, particularly for HGVs with east-west A-roads and more local roads from the north also carrying much traffic.



Daily Traffic into Thurrock

This map illustrates the daily traffic flows that are destined for Thurrock and proportion of traffic that are Heavy Goods Vehicles (HGVs), on an average weekday. This data is taken from a local cordon of the Lower Thames Area Model, developed by Highways England and used to assess the effects of the proposed Lower Thames Crossing.

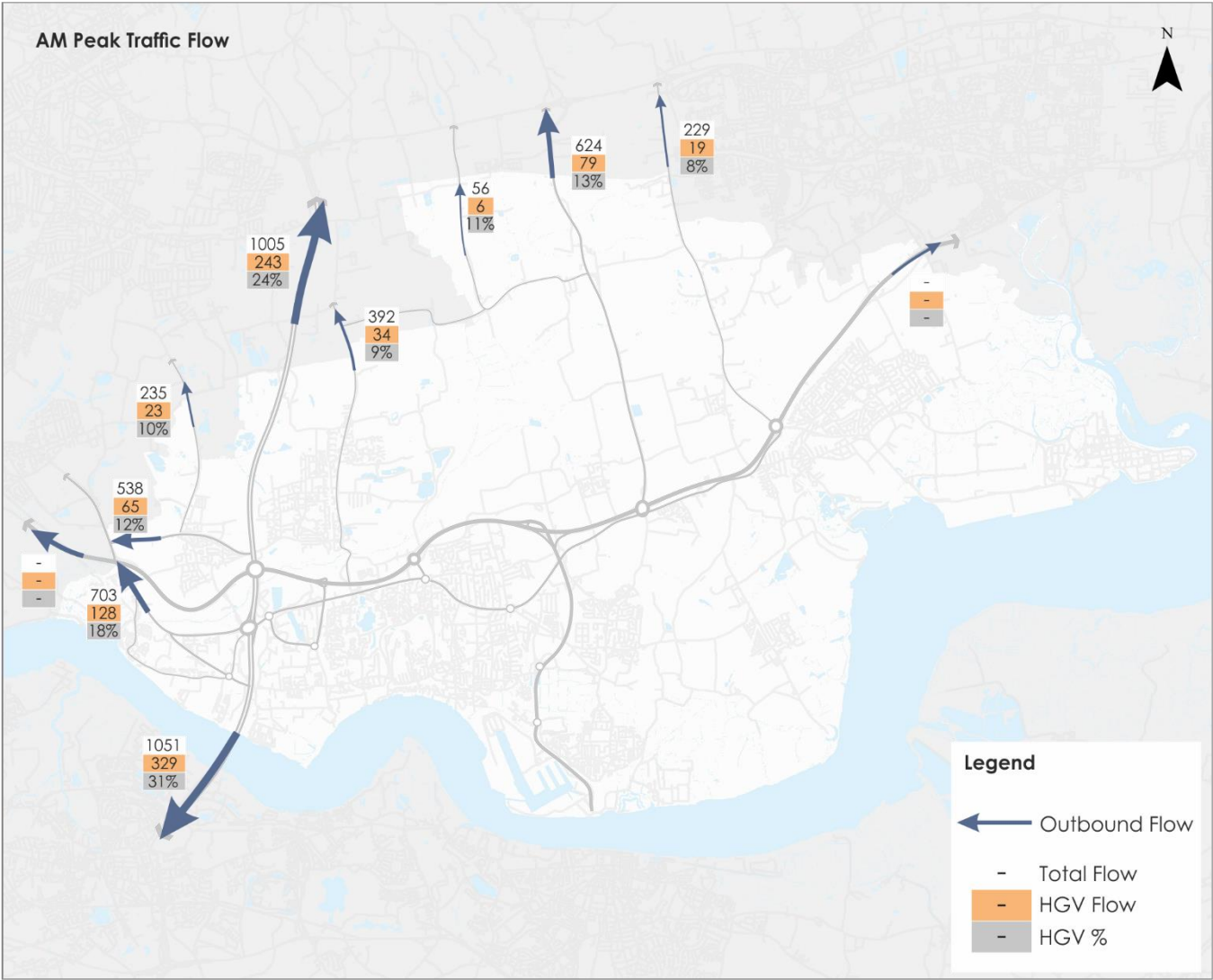
As with the morning peak demand, considerable amounts of traffic comes to Thurrock via the M25 motorway, particularly for HGVs with east-west A-roads and more local roads from the north also carrying much traffic.



Morning Peak Hour Traffic out of Thurrock

Map illustrates morning peak hour traffic flows that originate in and departs Thurrock, and proportion of traffic that are Heavy Goods Vehicles (HGVs). This data is taken from a local cordon of the Lower Thames Area Model, developed by Highways England and used to assess the effects of the proposed Lower Thames Crossing.

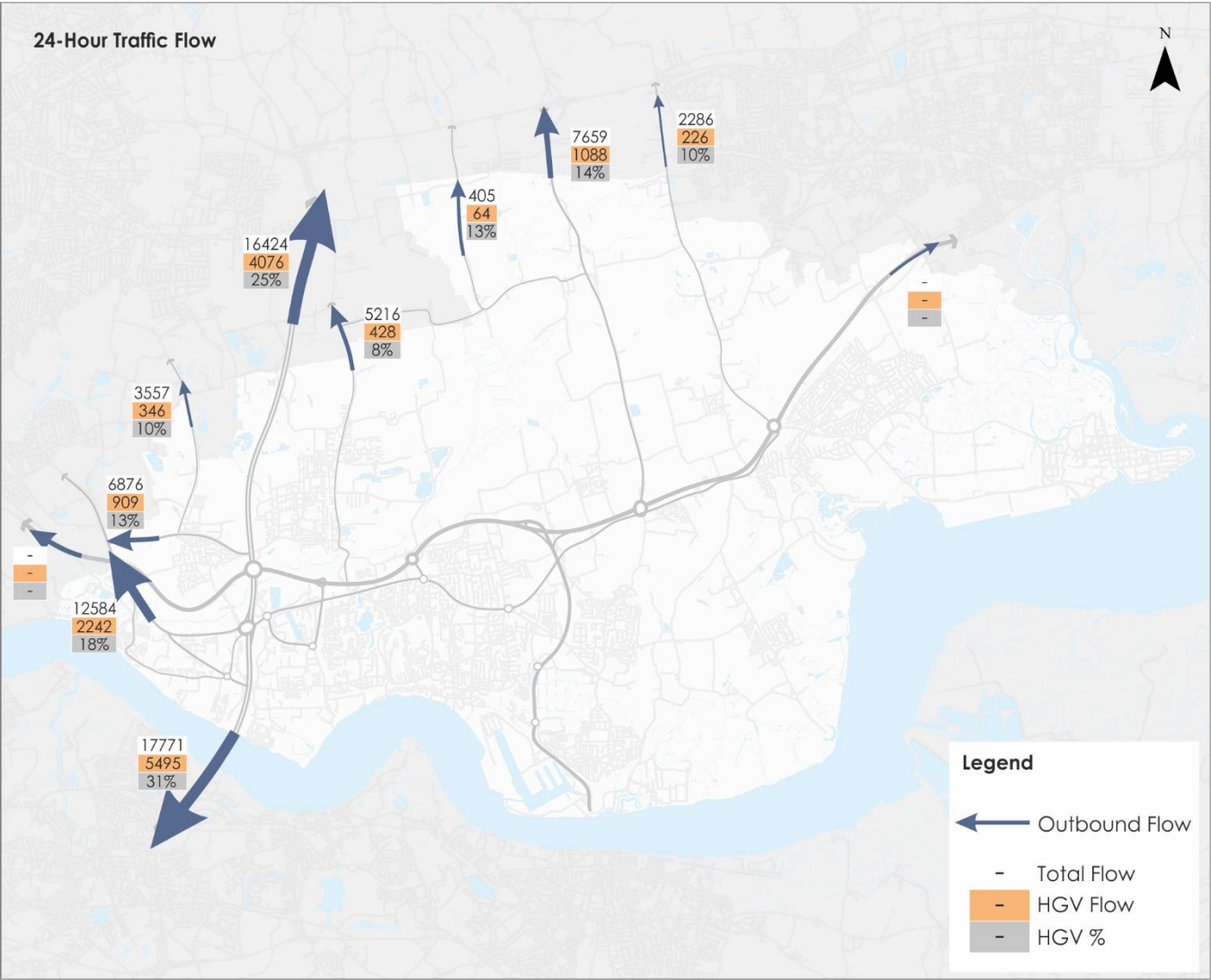
Considerable amounts of traffic leaves Thurrock via the M25 motorway, particularly for HGVs. East-west A-roads and more local roads from the north also carry much traffic.



Daily Traffic out of Thurrock

Map illustrates daily traffic flows that originate in and departs Thurrock, and proportion of traffic that are Heavy Goods Vehicles (HGVs). This data is taken from a local cordon of the Lower Thames Area Model, developed by Highways England and used to assess the effects of the proposed Lower Thames Crossing.

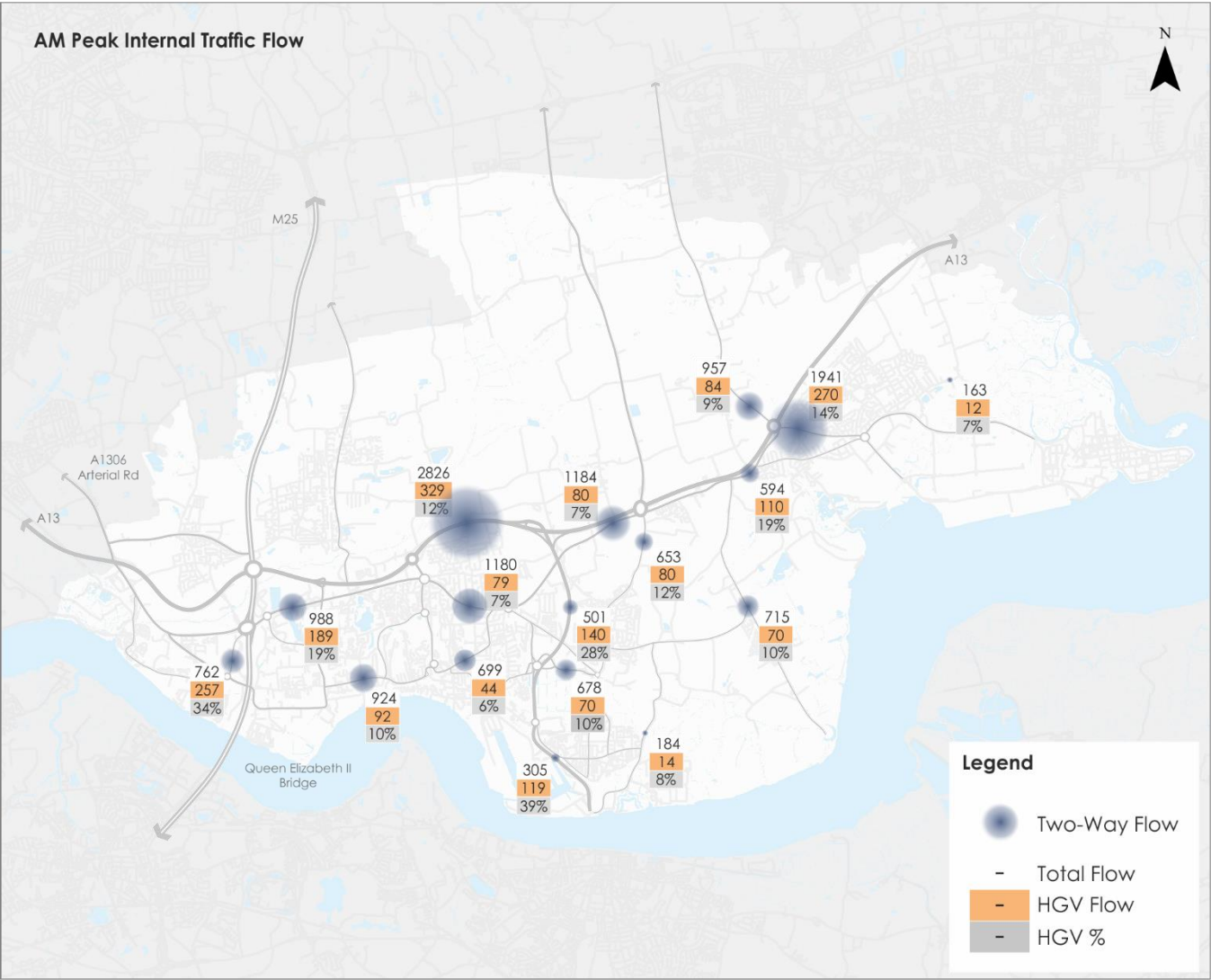
Considerable amounts of traffic leaves Thurrock via the M25 motorway, particularly for HGVs. East-west A-roads and more local roads from the north also carry much traffic.



Morning Peak hour traffic within Thurrock

This map illustrates morning peak hour traffic flows within Thurrock and the proportion of traffic that are Heavy Goods Vehicles (HGVs). This data is provided by Thurrock Council and assimilated from a series of empirical traffic counts across a range of years from 2016 to 2019.

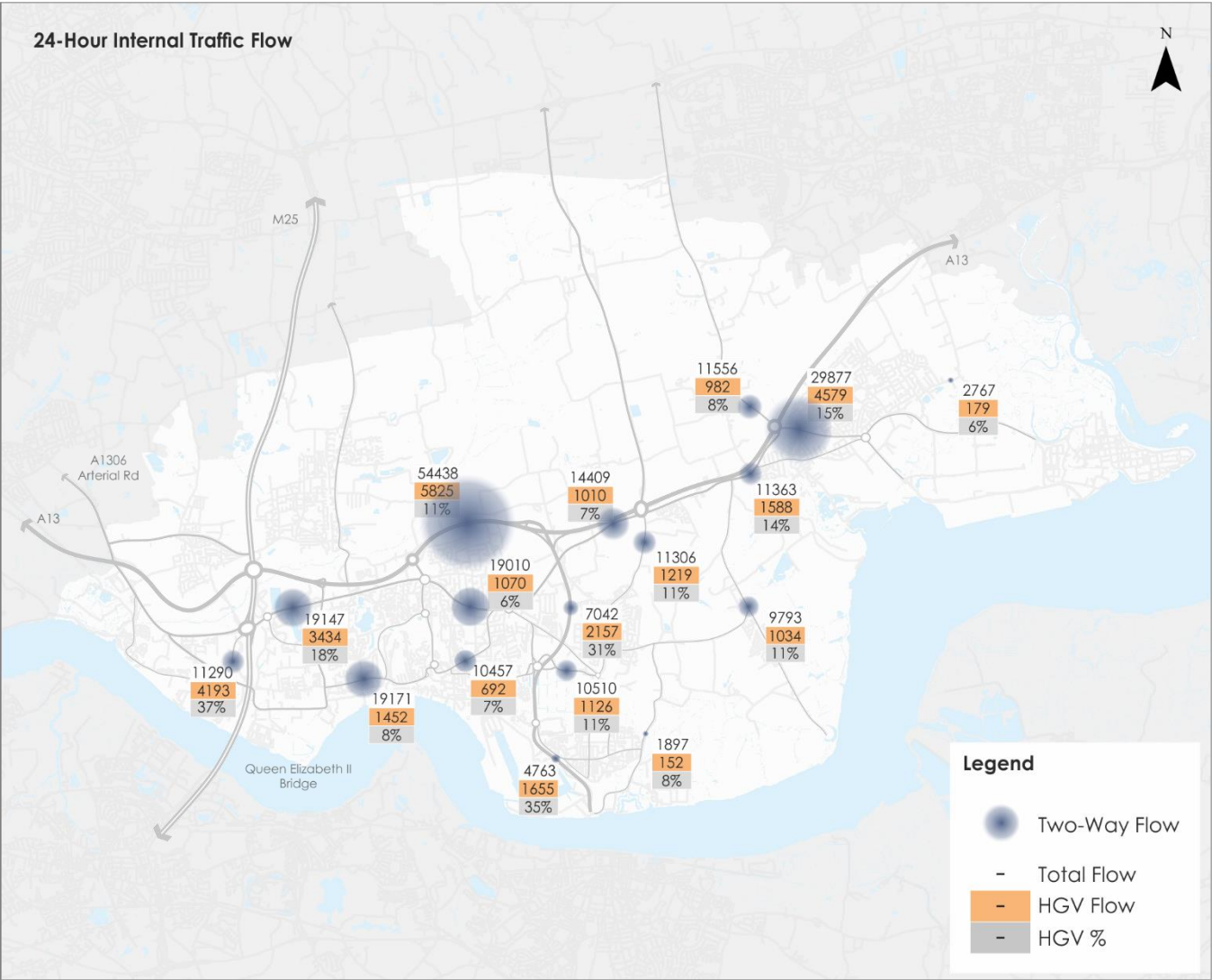
Considerable amounts of traffic use the east-west A-roads but some more minor roads in urban areas are also used. Routes leading to ports have high proportions of HGV traffic.



Daily traffic within Thurrock

This map illustrates daily traffic flows within Thurrock and the proportion of traffic that are Heavy Goods Vehicles (HGVs), average weekday. This data is provided by Thurrock Council and assimilated from a series of empirical traffic counts across a range of years from 2016 to 2019.

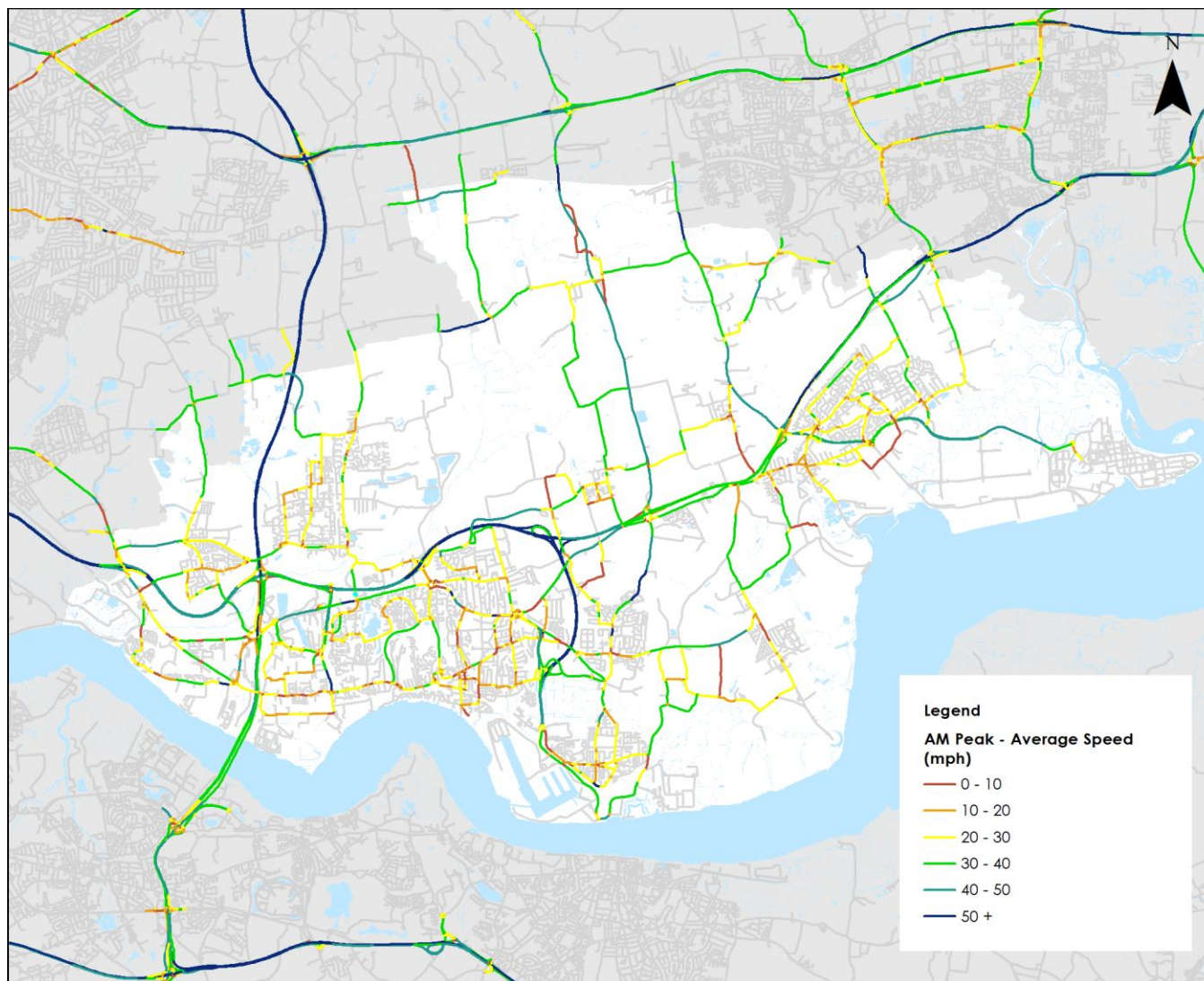
Considerable amounts of traffic use the east-west A-roads but some more minor roads in urban areas are also used. Routes leading to ports have high proportions of HGV traffic.



AM Highway Speeds

This map illustrates highway average speeds in Thurrock in the morning peak hour (0800-0900) taken from the TrafficMaster database.

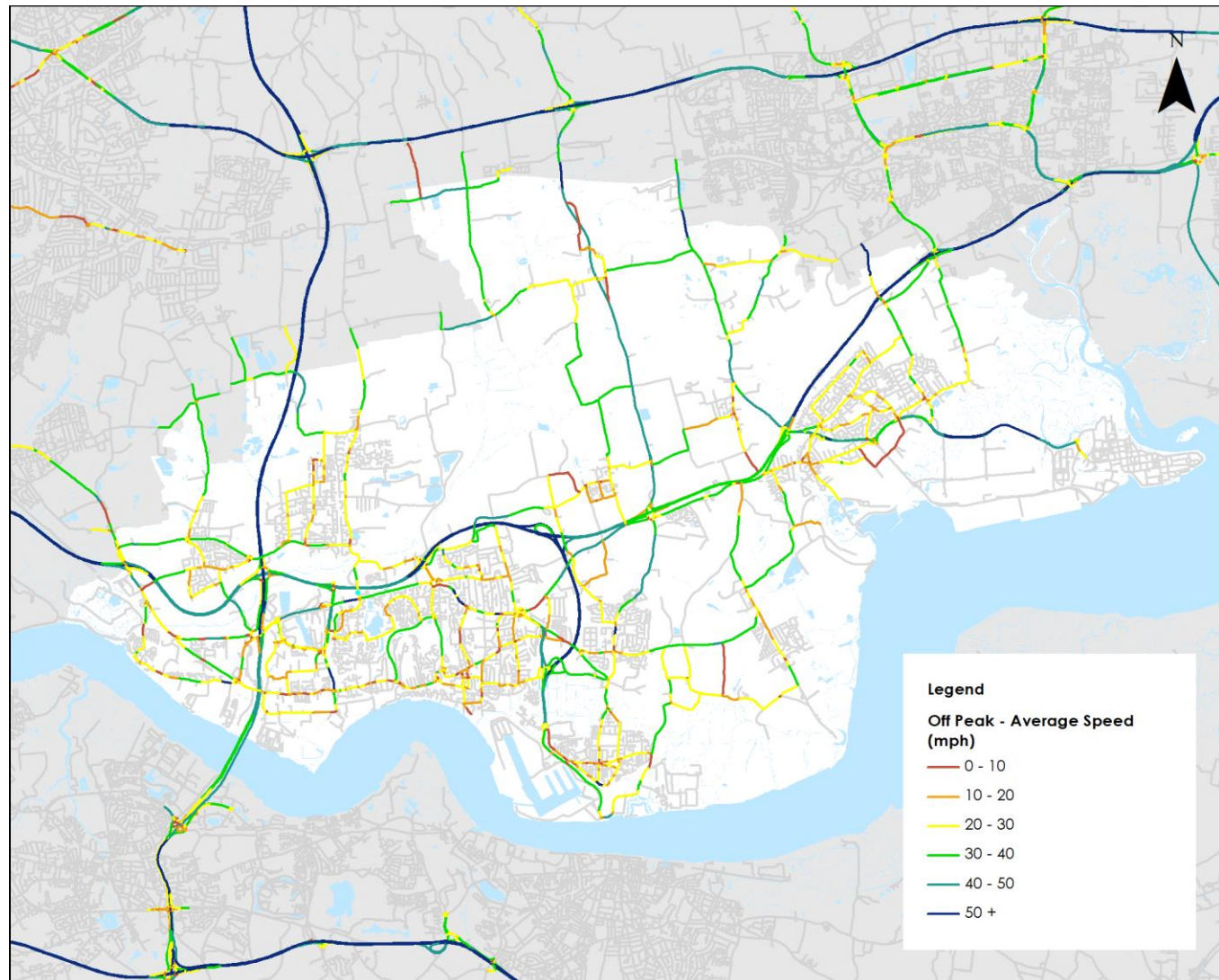
The map shows that large sections of the strategic road network in Thurrock, the M25 motorway and A roads have high average speeds (50+mph) but also shows that speeds are low on sections of the strategic network and local roads indicating possible areas of congestion.



Off-peak Highway Speeds

The map illustrates highway average speeds in Thurrock in the off-peak hours (1000-1600) taken from the TrafficMaster database.

The map shows that large sections of the strategic road network in Thurrock, the M25 motorway and A roads continue to have high average speeds (50+mph) during the off-peak period but that sections of both the strategic and local road network have areas of lower speed indicating possible areas of congestion – not eased from the AM peak period.

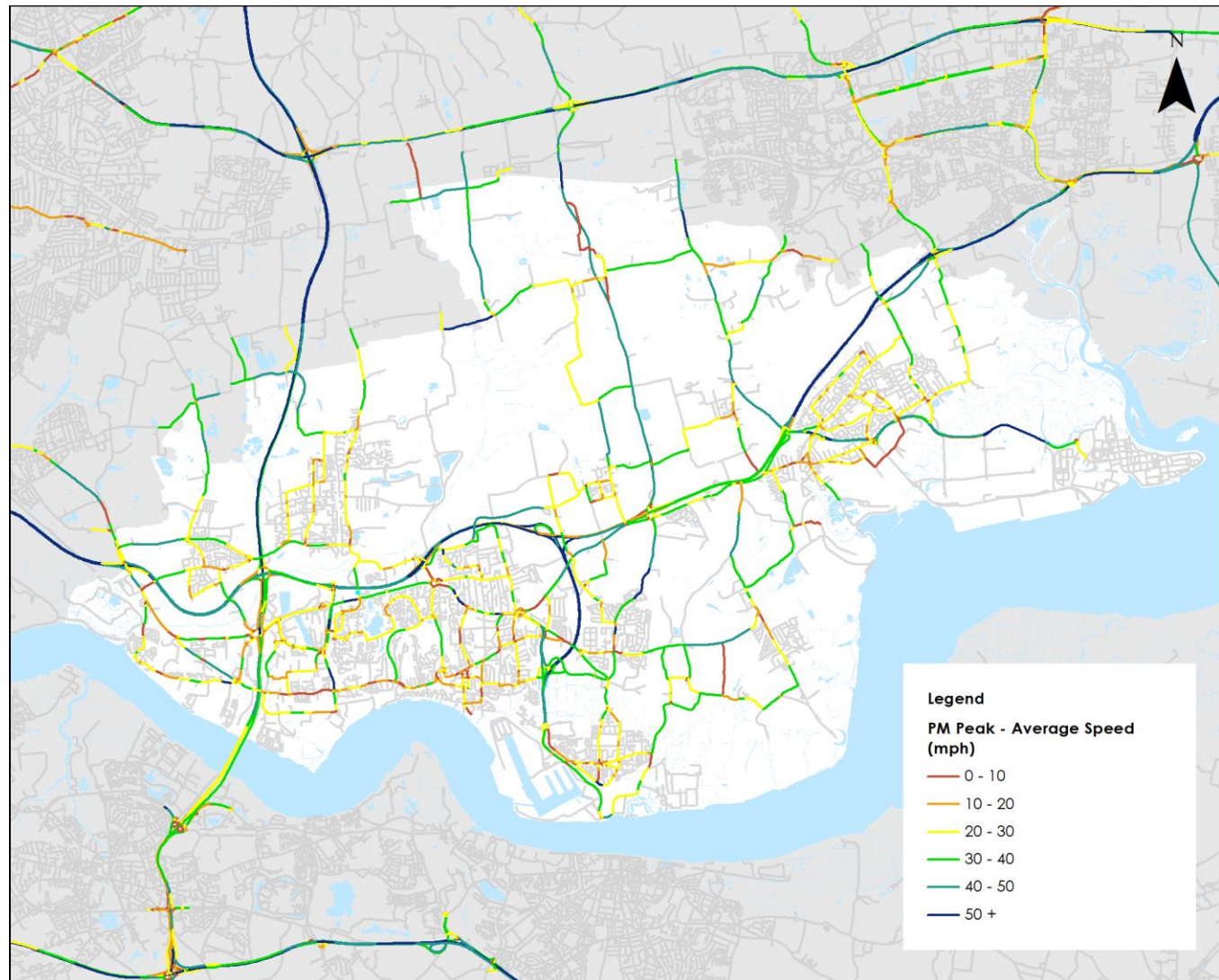


PM Highway Speeds and Congestion

The map illustrates highway average speeds in Thurrock in the evening peak hour (1700-1800) taken from the TrafficMaster database.

The map shows that many key roads of the strategic road network maintain high average speeds (50+mph) but with sections of lower average speed unchanged from the AM peak period.

The London Road corridor and North Stifford junction indicate very low average speeds indicating areas of congestion.

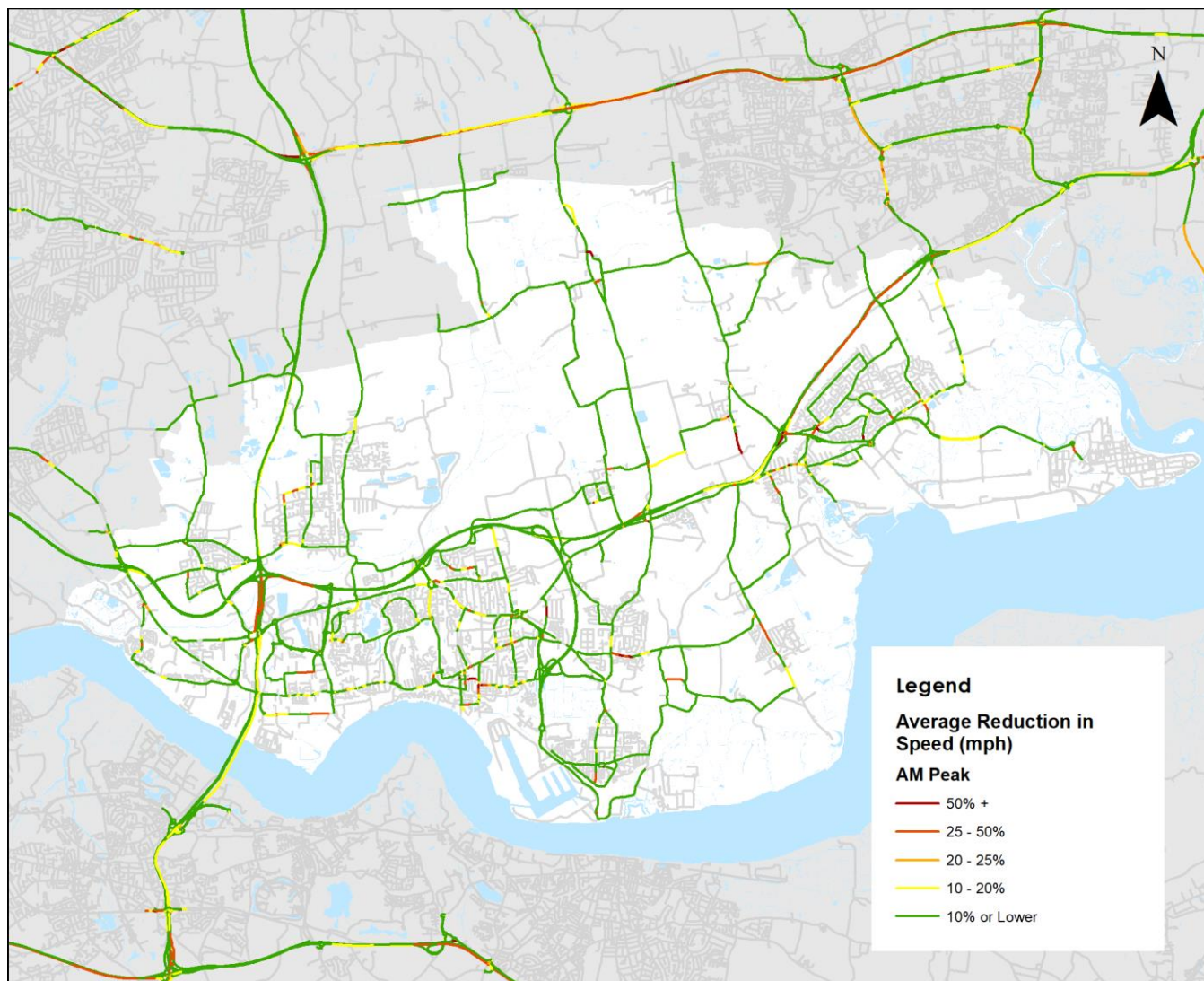


AM Highway Speed Reductions

This map illustrates the comparative reduction from off-peak highway average speeds in Thurrock in the morning peak hour (0800-0900) taken from the TrafficMaster database.

The map indicates that across much of the network there are only minor variances between the AM peak period traffic speed and the inter-peak period.

The variance in average speed around M25 junction 3 and to the west of The Manorway junction are most notable.

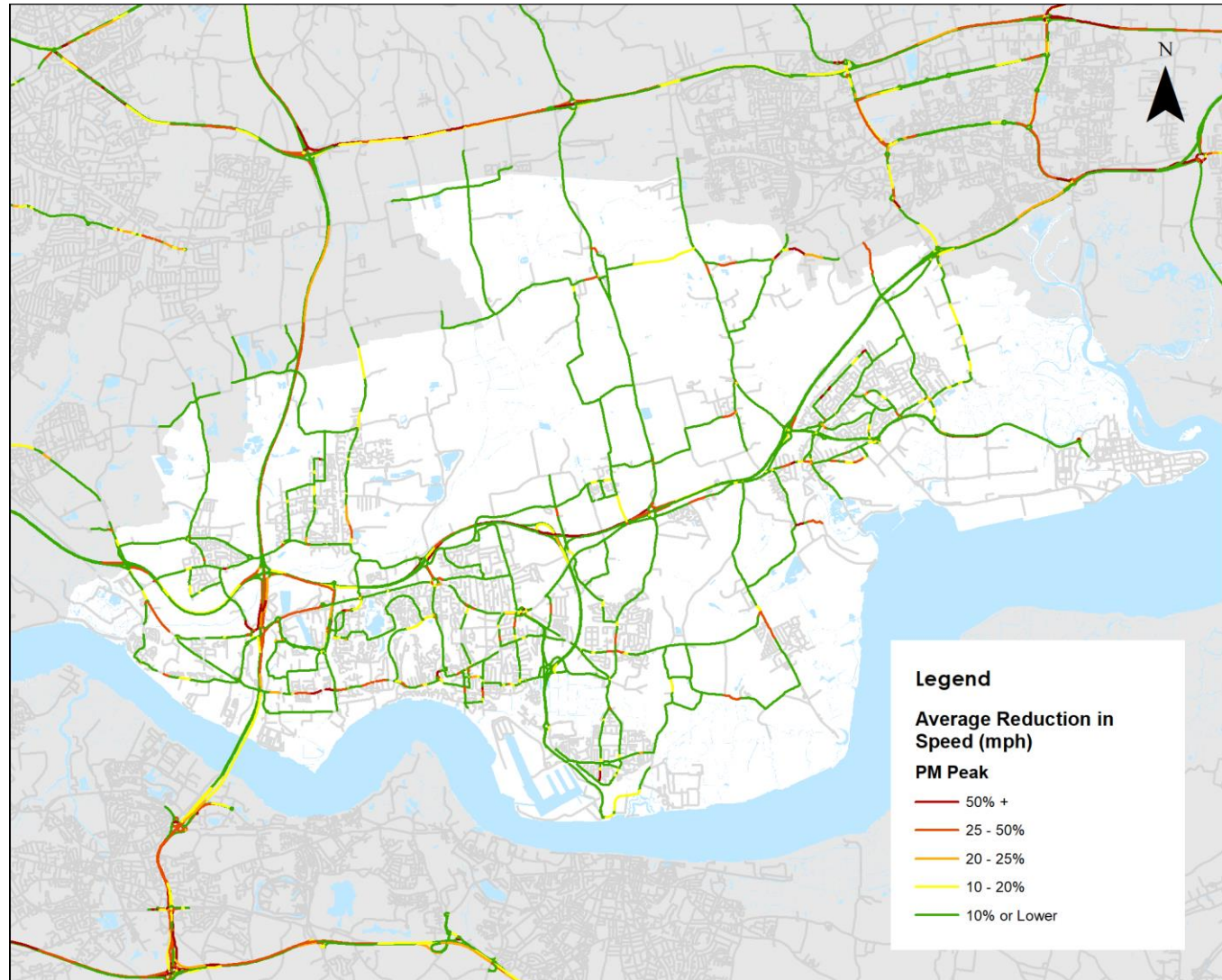


PM Highway Speed Reductions

The map illustrates the reduction from off-peak highway average speeds in Thurrock in the evening peak hour (1700-1800) taken from the TrafficMaster database.

The map shows that average vehicle speeds reduce around M25 junction 30, along London Road and at the Orsett Cock roundabout. This indicates the impact of PM peak traffic on speeds in comparison to the off-peak period.

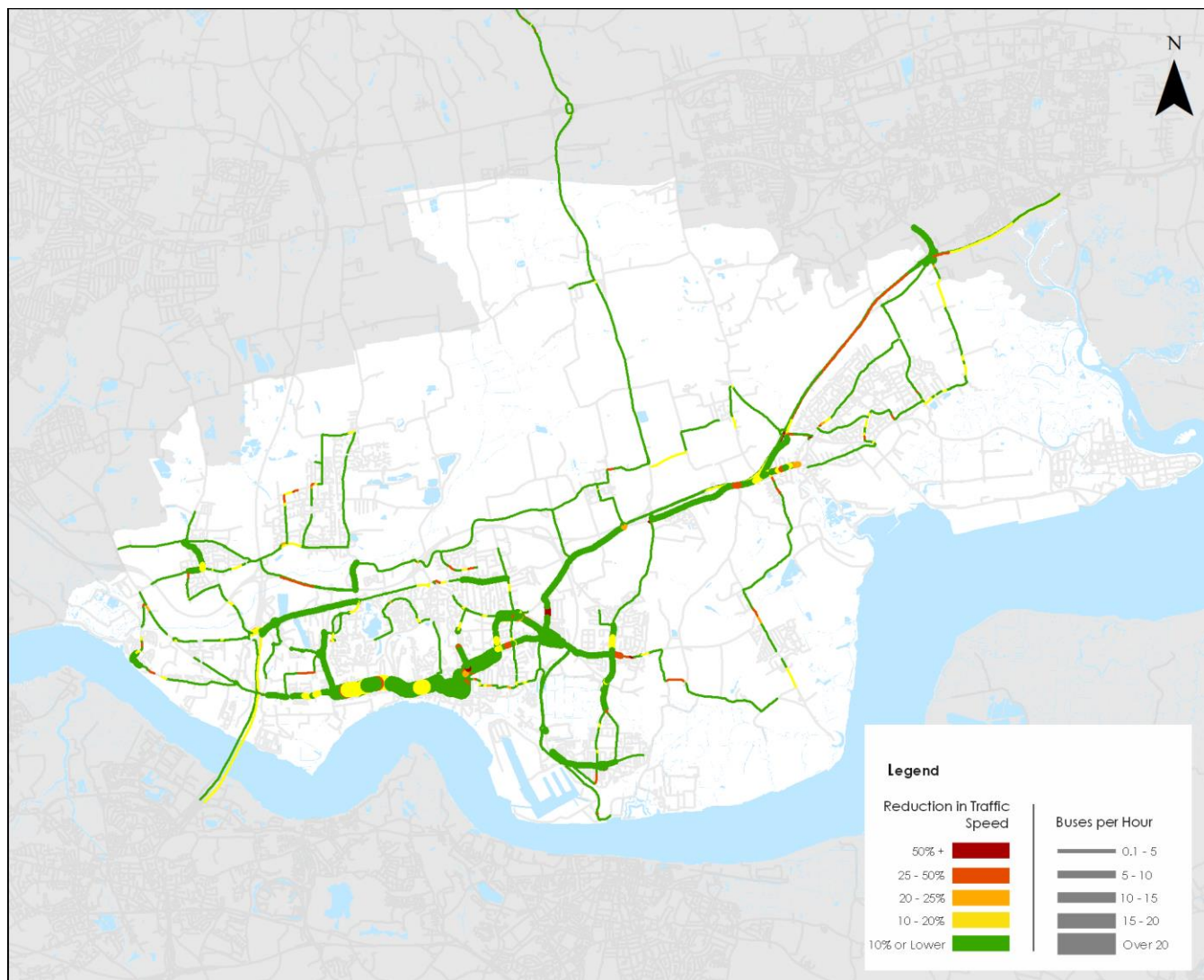
The indication from this data is that journey time reliability is lower in the evening peak hour than the morning peak hour.



AM Public Transport and traffic delay

This map illustrates a combination of reduction of highway speeds and number of buses on each route, in Thurrock, in the AM peak hour (0800-0900).

The map shows that many key bus routes experience highway congestion with yellow, orange and red hotspots on main bus routes, in particular along the London Road corridor.

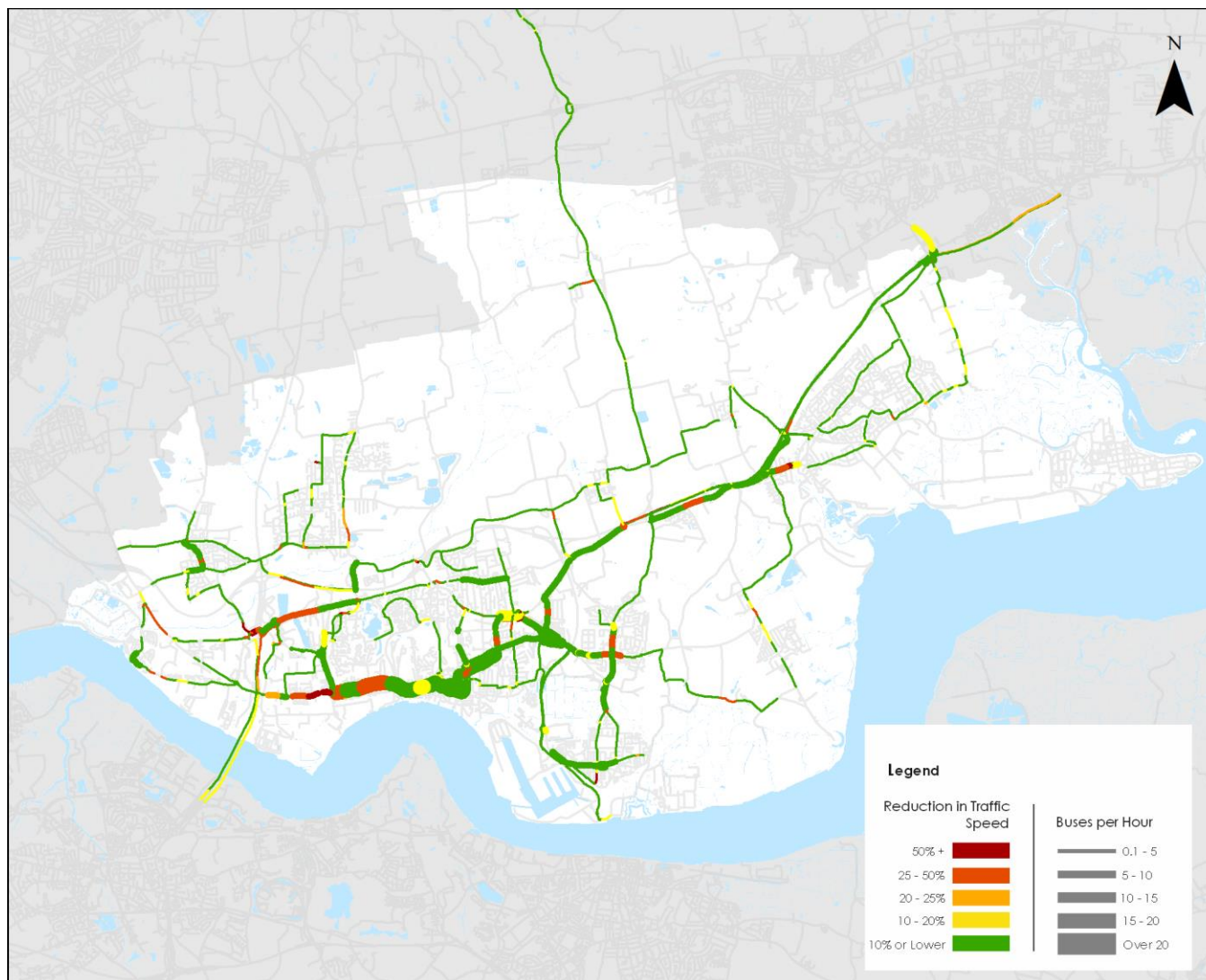


PM Public Transport and traffic delay

This map illustrates a combination of reduction of highway speeds and number of buses on each route, in Thurrock, in the PM peak hour (1700-1800).

The map shows that many key bus routes experience highway congestion with yellow, orange and red hotspots on main bus routes.

The impact on the London Road and Arterial Road West corridors within Grays is marked.

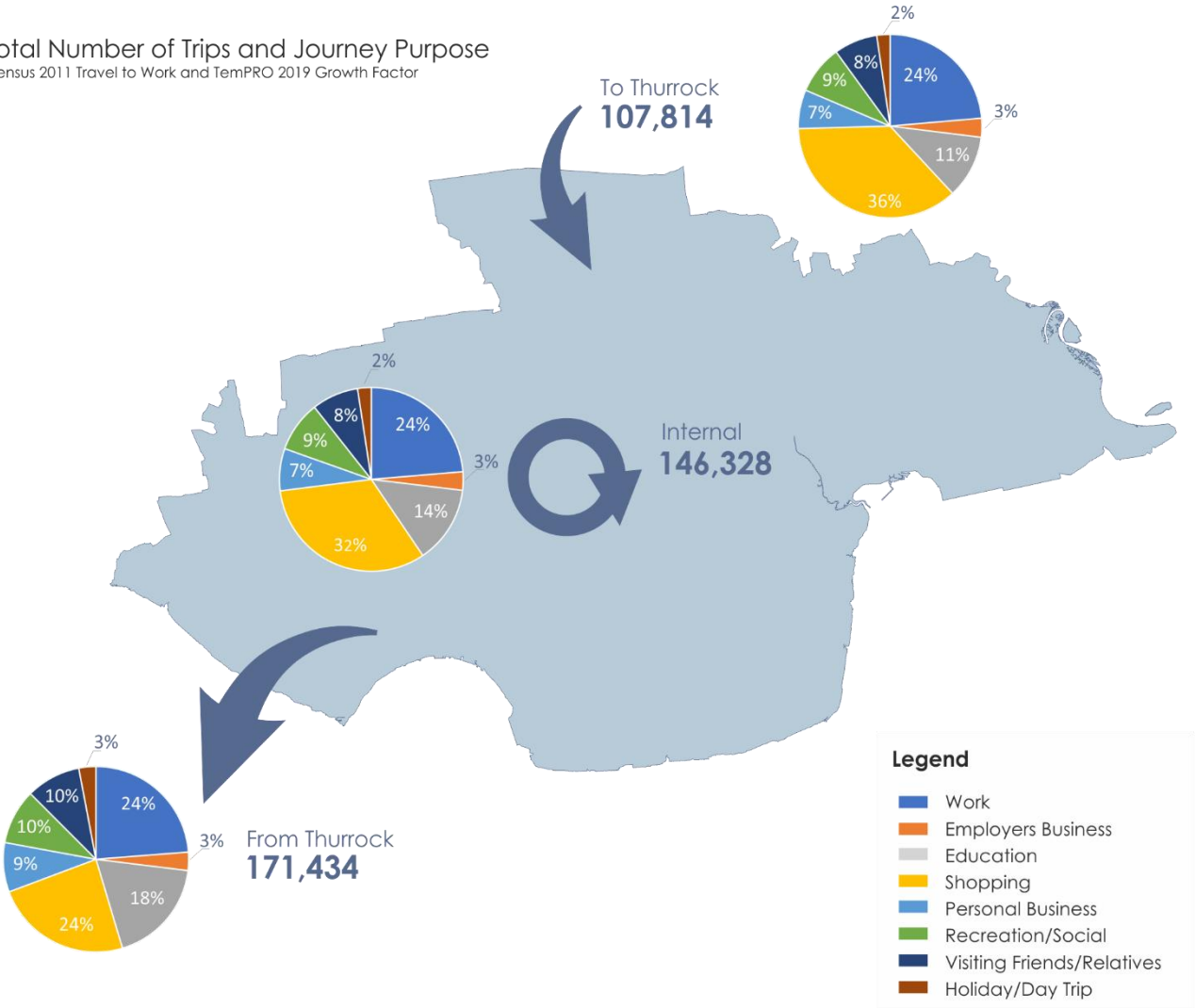


Travel Demand – Journey Purpose

This map illustrates travel demand and journey purpose to, from and in Thurrock, on an average weekday in 2019 (factored from 2011 census data).

The strong proportion of shopping related movements is noticeable for inbound and internal trips. This is perhaps due to the age of the data and the Lakeside retail centre.

Total Number of Trips and Journey Purpose
Census 2011 Travel to Work and TemPRO 2019 Growth Factor



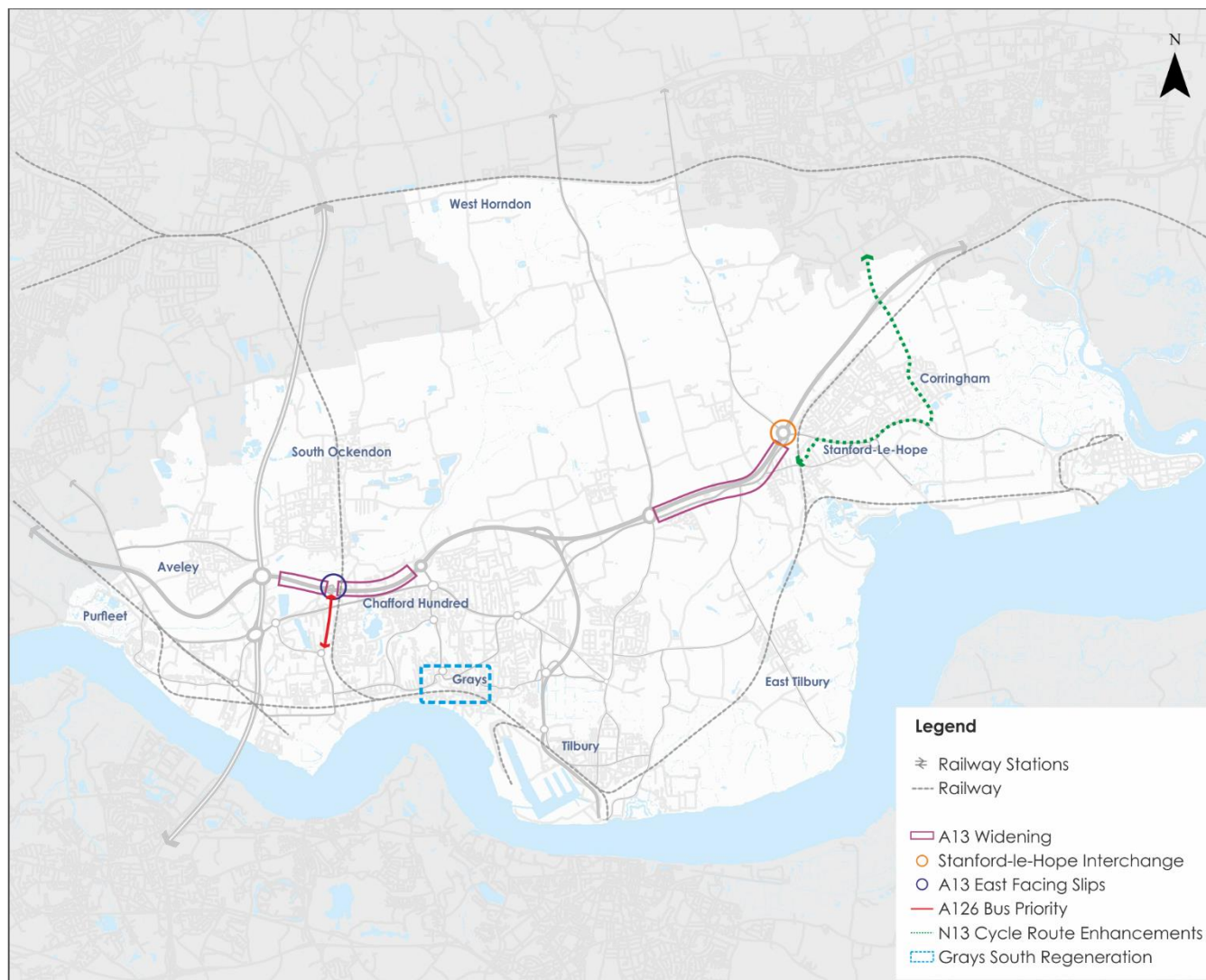
Appendix A3. Mobility data



Road Network in Thurrock – Committed changes

This map shows schemes which have been identified by Thurrock Council and Highways England as committed schemes which will be coming forward to change and improve the road transport network within Thurrock.

This data does not include the Lower Thames Crossing which is due to be examined in late 2021 through the Development Consent Order process.



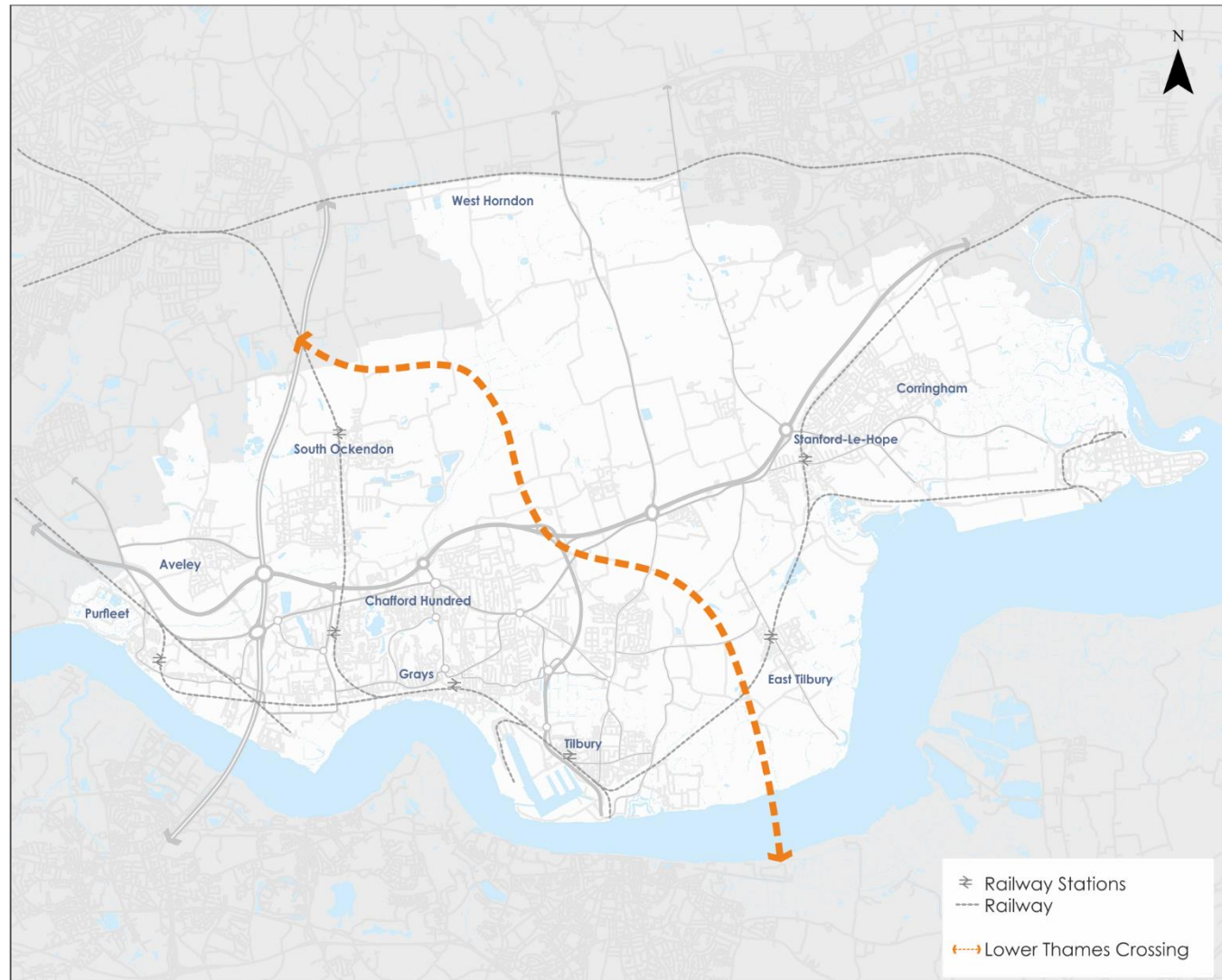
Lower Thames Crossing

The proposal of an additional river crossing and new strategic link crossing Thurrock presents opportunities for improving the transport network within Thurrock if the linkages with other levels of the transport network are made.

At present the details of the proposals are being considered and submission of a revised application is expected in late 2021.

Critical functions for the trunk road within Thurrock is the effective transit of freight from the existing and expected expansions of the ports. This would support economic development both within Thurrock itself and the wider region including the movement of freight into London.

Thurrock Council is working with Highways England to minimise the impact of the Lower Thames Crossing on Thurrock and the travel network and enhance connectivity across and along that corridor.

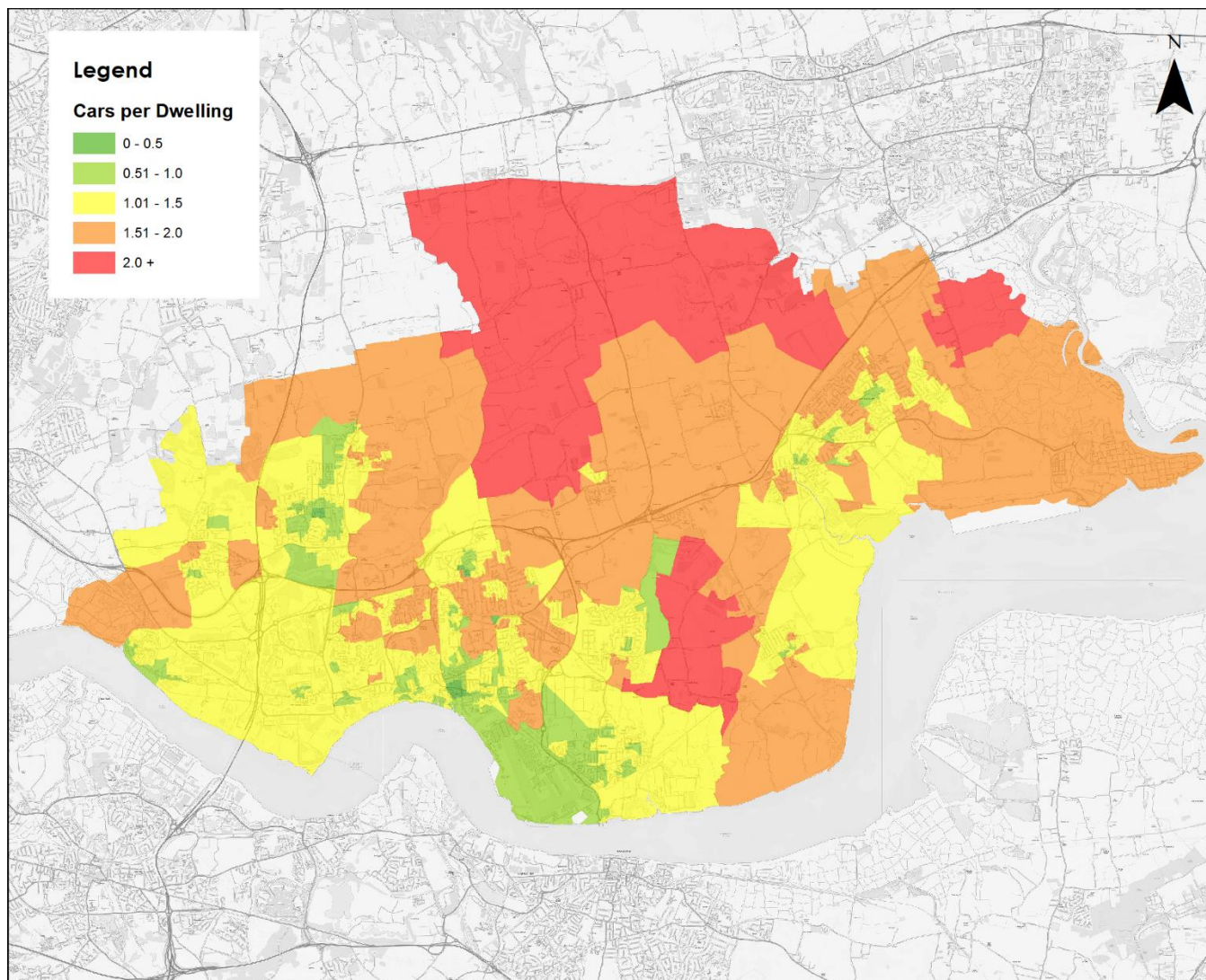


Car Ownership - Cars per Dwelling

This map illustrates car ownership across Thurrock in average cars per dwelling.

There is a clear pattern that residents living in the more rural areas of Thurrock own more cars, two or more per dwelling. This makes sense as rural areas have less public transport services, residents are more car dependent.

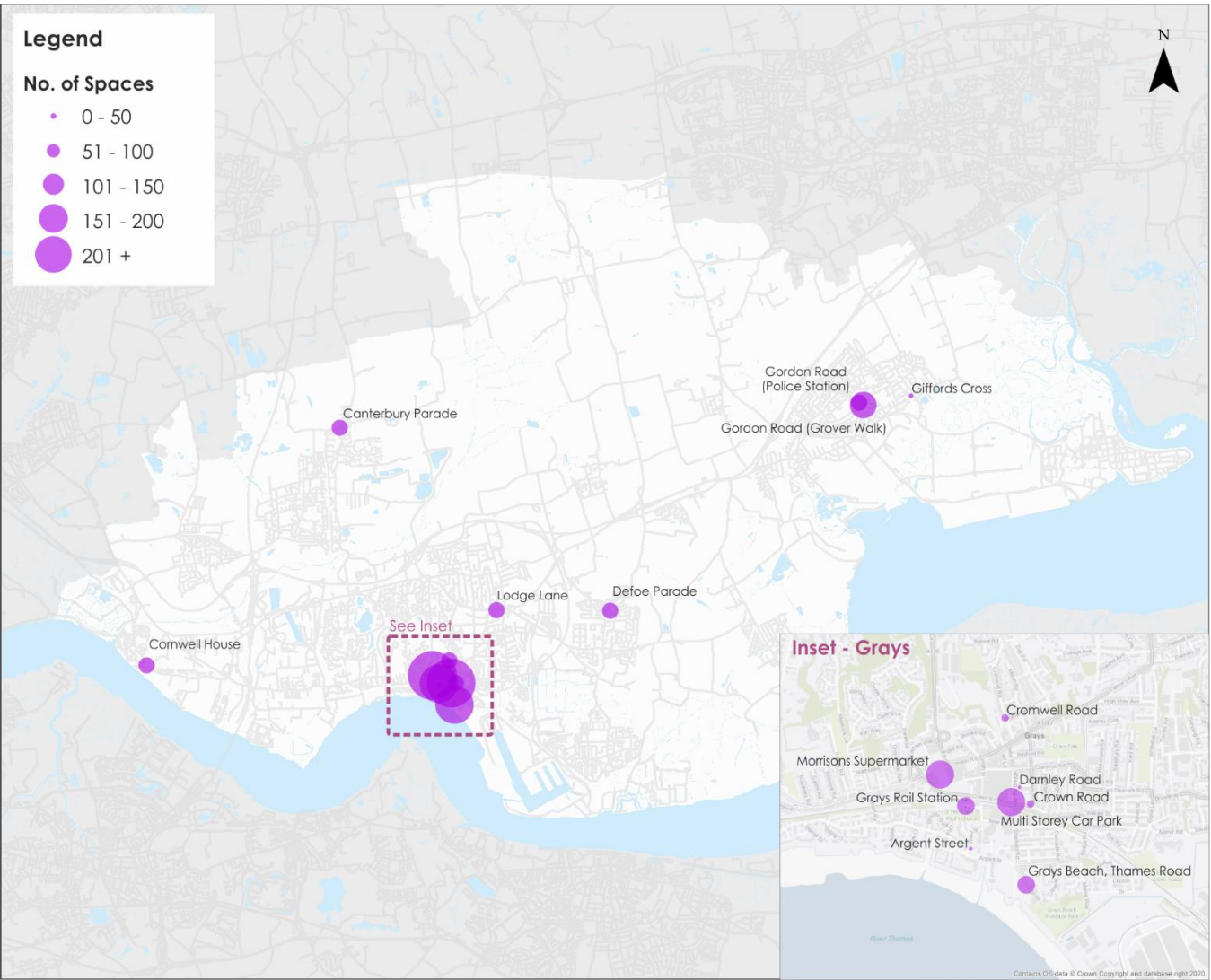
Residents living in urban areas own less cars. In particular, residents in Tilbury and Ockenden areas are the most likely not to own a car.



Car Parking in Thurrock

This map illustrates key public car parking areas in Thurrock. It shows there are few large parking areas and that parking is concentrated around Grays in the southwest.

Thurrock Council has commissioned a Parking Strategy for the borough which informs the location for parking places, the form of those parking places and how that provision should be co-ordinated with emerging development.

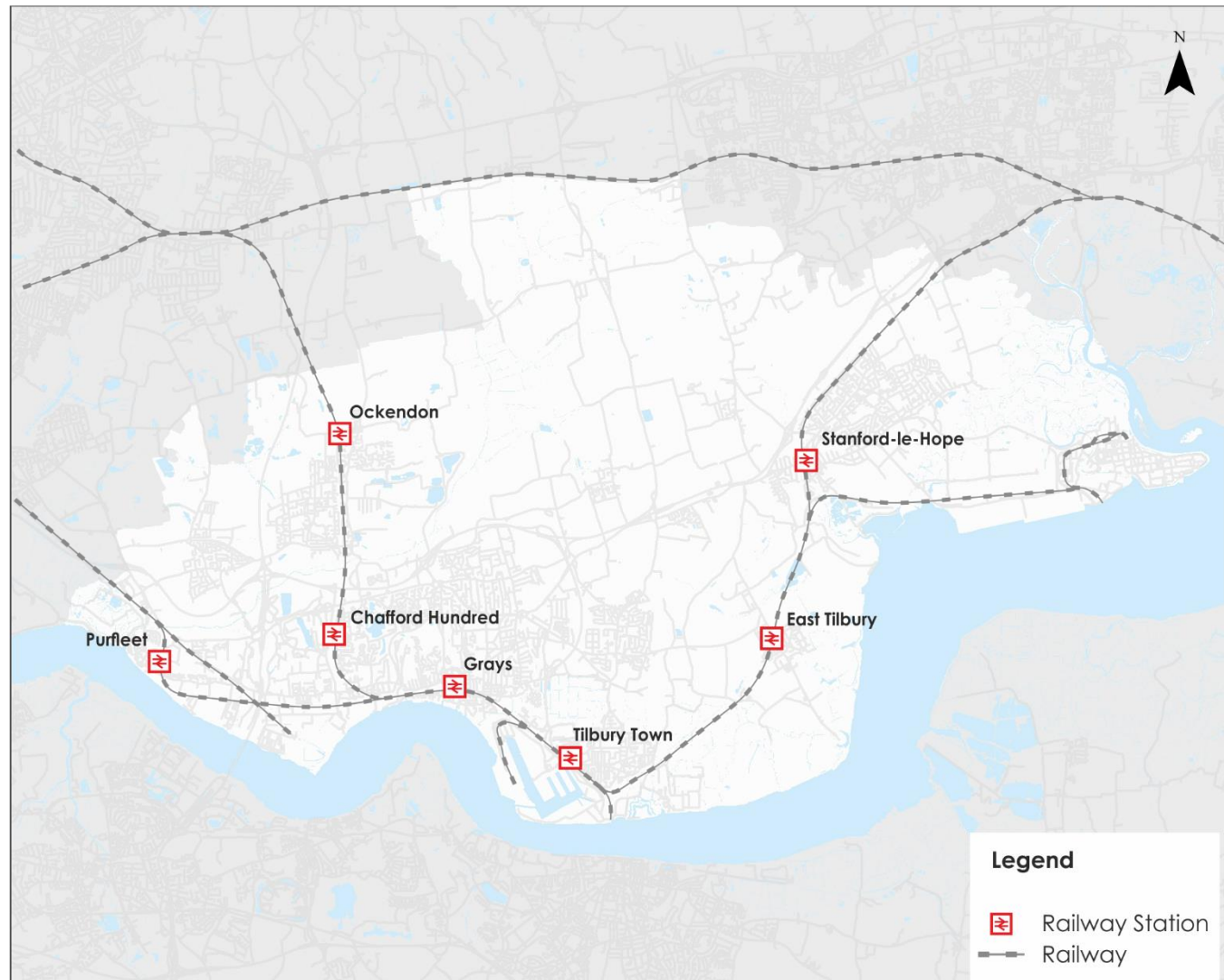


Rail Network in Thurrock

There are seven rail stations within Thurrock, with up to nine trains per hour (Grays) serving destinations including London Fenchurch Street, Southend and Basildon. Both London Fenchurch Street and Southend are 35-40 minutes journey from Grays.

This map shows that Thurrock's rail connections are generally east-west, serving demand to/from London. There are no direct rail connections to the north or south across the river. The high-speed 1 (HS1) line runs through Thurrock in the southwest but does not have an interchange.

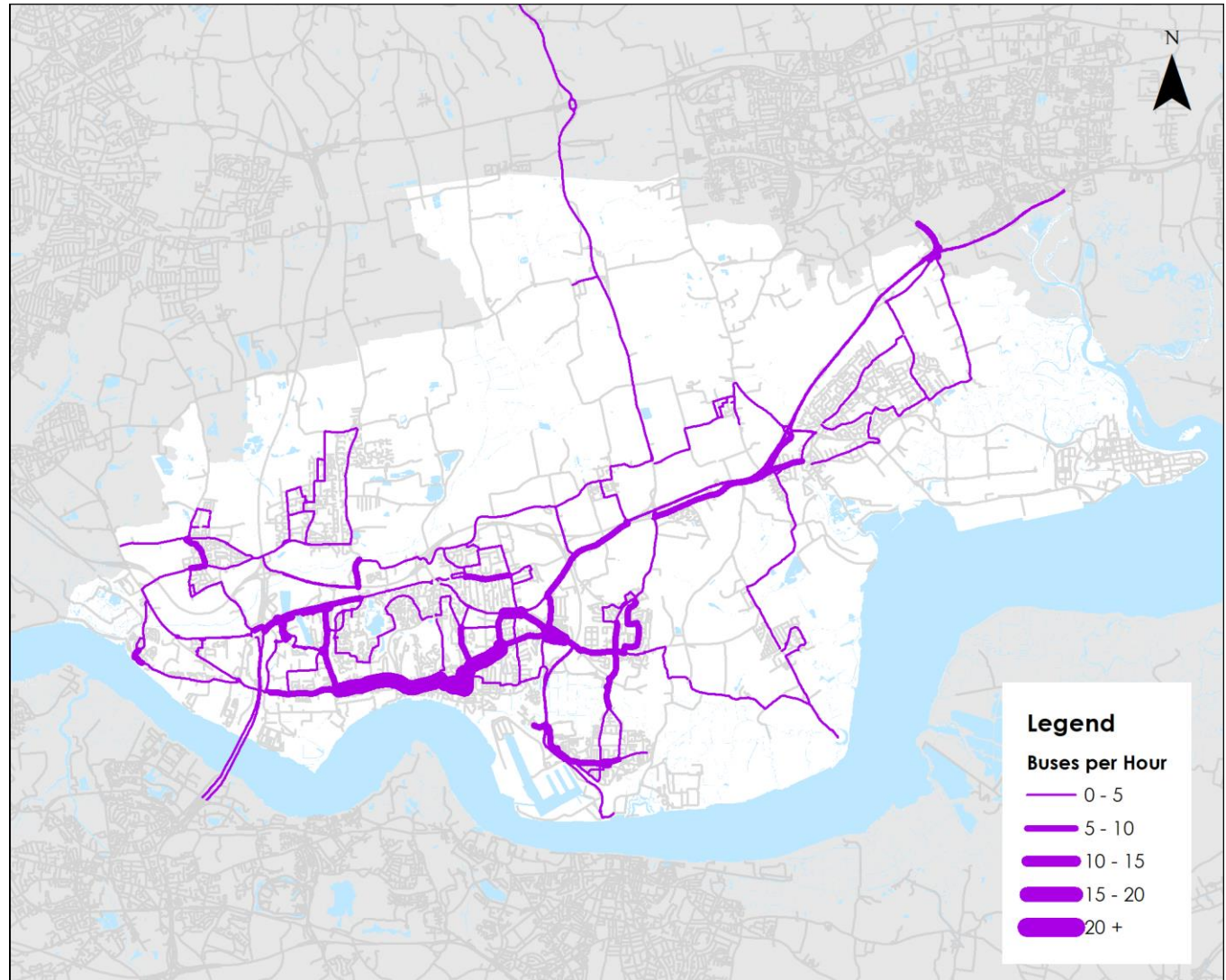
The rail network also serves the large distribution and port locations within Thurrock, providing a strategic alternative to HGV transport of goods. These journeys share rail network sections with the passenger rail network.



Bus frequency

There is an extensive bus network operating in Thurrock which has some connections externally, including services into Greater London, Essex and Kent.

The highest frequency areas run through the centre of Grays, which is also close to Grays Rail Station, providing interchange opportunities.



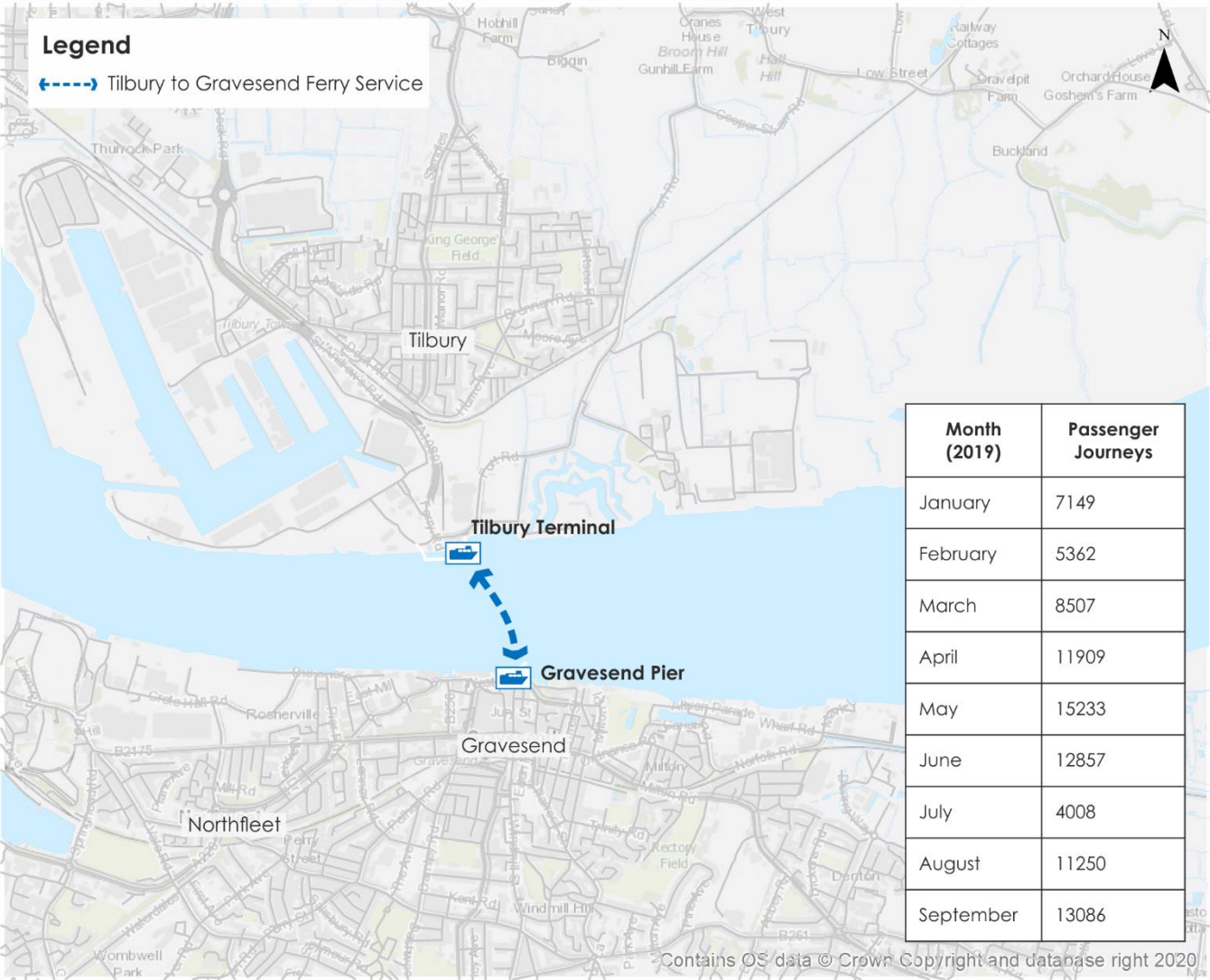
Ferry services within Thurrock

This map shows the ferry link across the river Thames, linking Tilbury in Thurrock to Gravesend in Kent.

Demand for the service is higher in summer months but still significant through the winter.

The service is for passengers only and crossings take between 5 and 10 minutes, depending on river traffic. Services run around every 30mins during the day, 5:30am – 7pm, Mon-Saturday.

In the future there are plans to expand ferry services, and for additional ferry terminals which could serve both passengers and light freight. This is understood to be through the extension of the Thames Clipper services out of London and to provide additional crossing opportunities as well as journey into and out from London.



Appendix A4. Safety data



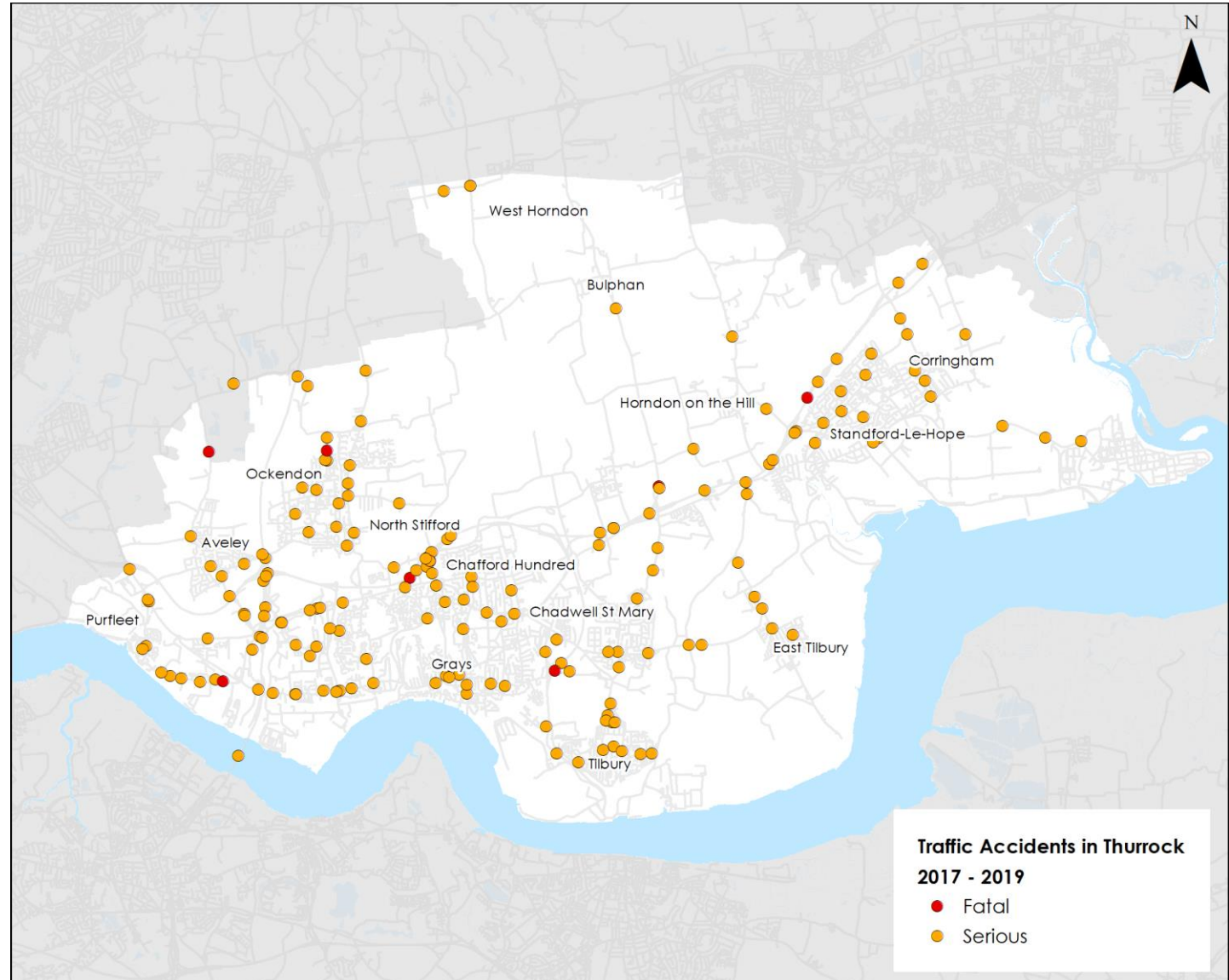
Accident Data

This map shows serious and fatal accidents recorded over a three year period. Slight accidents have not been plotted for clarity.

This data set has been provided by Thurrock Council, and includes information only on those accidents recorded by the police.

Between 2017 and 2019, there were 853 road traffic accidents across Thurrock, with 7 of these fatal accidents (1%), 177 serious accidents (21%) and 669 slight accidents (78%).

Of the seven fatal accidents, two involved vulnerable road users.



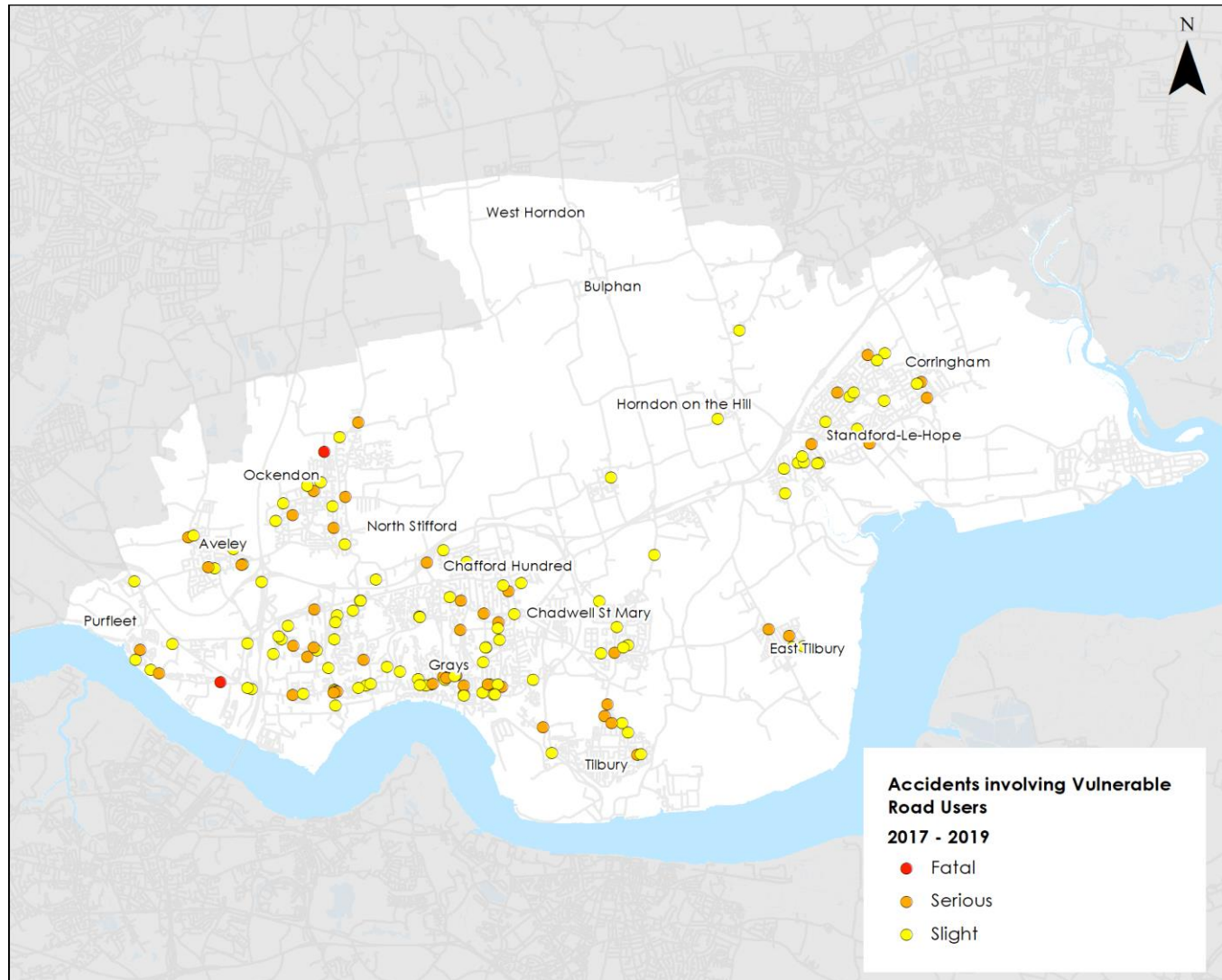
Vulnerable road user safety

Between 2017 and 2019, there were 152 road traffic accidents across Thurrock that involved pedestrians or cyclists.

Accident clusters for vulnerable road users are apparent in predominantly urban areas, including around Grays, Ockendon and Stanford-Le-Hope, with less prevalence in The Fens.



18% of accidents involved vulnerable road users



Pedestrian safety

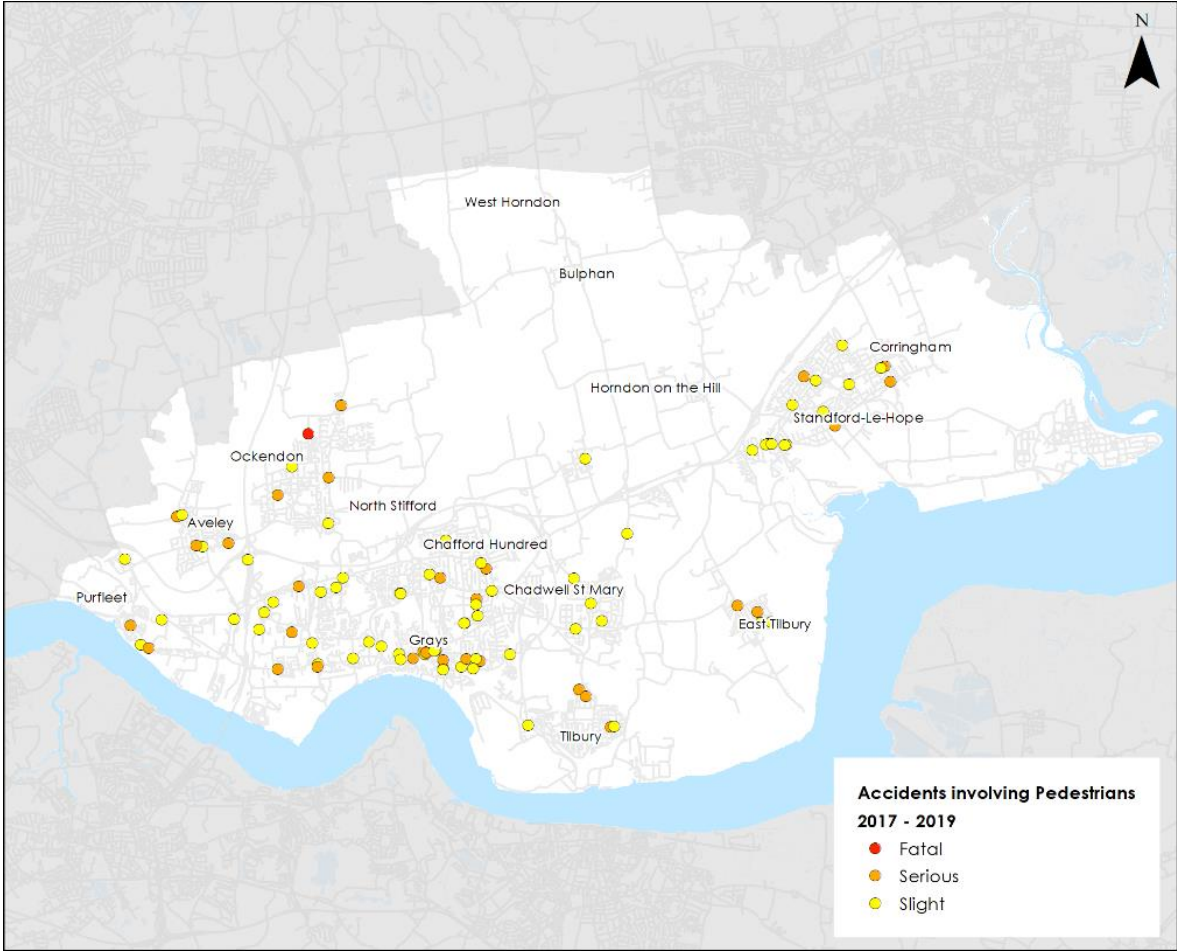
National and regional data has been obtained to provide a benchmark for Thurrock accidents. The Department for Transport provides road traffic accident data for Great Britain, and the Safer Essex Roads Partnership (SERP) provides a road safety service across 'Greater Essex' (including Essex County Council, Southend-on-Sea Borough Council and Thurrock Council).

Between the years of 2017 and 2019, there have been 104 pedestrian casualties as a result of road traffic accidents in Thurrock, which is 9% of the total number of casualties.

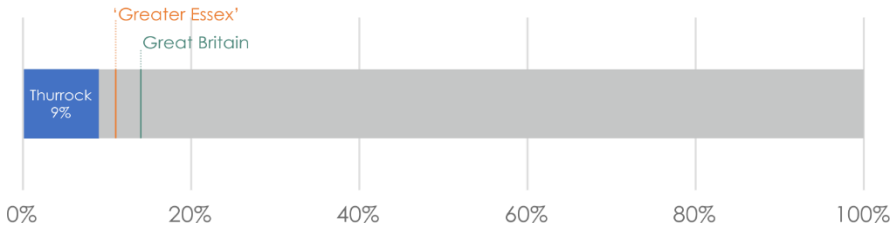
One pedestrian fatality was recorded in this time period, located in South Ockendon.

From data obtained from the *Department for Transport Reported Road Casualties in Great Britain: 2019 Annual Report*, pedestrians represented 14% of all casualties in 2019 in the UK. Whereas in Thurrock, pedestrians represented only 9% of all casualties in 2019.

SERP data obtained for 2019 shows that pedestrians represented 11% of all casualties in 2019, higher than Thurrock.



Pedestrian Casualties in 2019



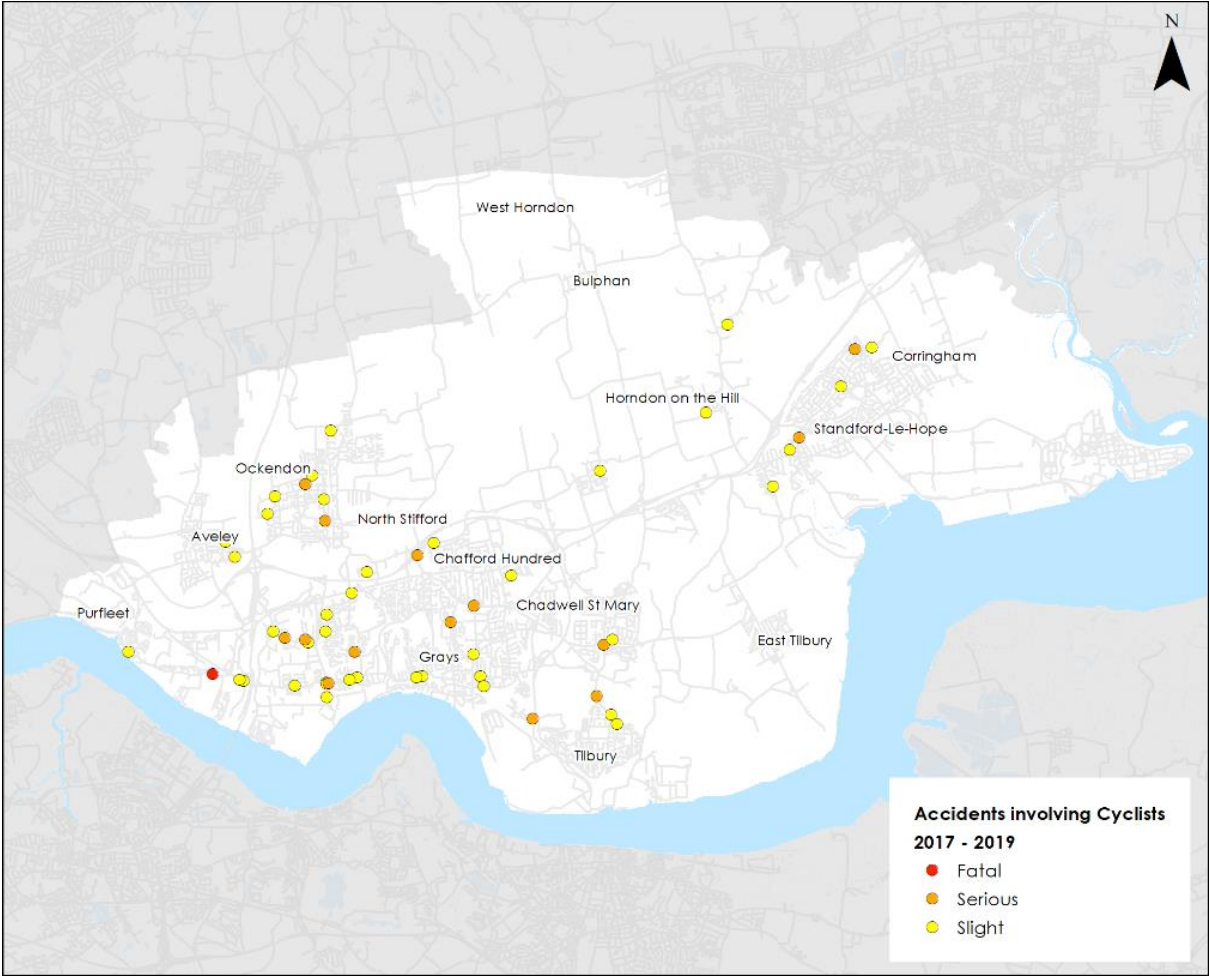
Cyclist safety

Between the years of 2017 and 2019, there have been 54 cyclist casualties as a result of road traffic accidents in Thurrock, which is 5% of the total number of casualties over the three year period.

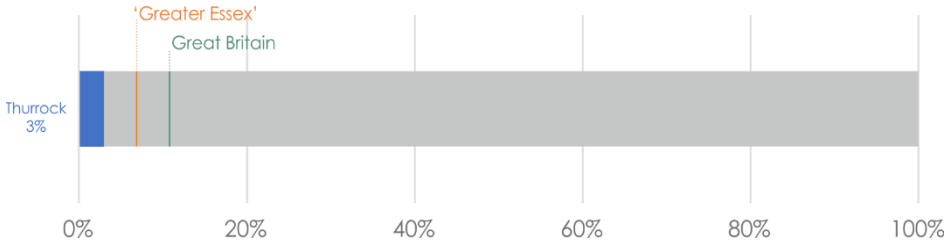
In this time period, one recorded accident was fatal, occurring on London Road in Purfleet.

From data obtained from the *Department for Transport Reported Road Casualties in Great Britain: 2019 Annual Report*, cyclists represented 11% of all casualties in 2019 in the UK. Whereas in Thurrock, pedestrians represented only 3% of all casualties in 2019.

SERP data obtained for 2019 shows that cyclists represented 7% of all casualties in 2019, again greater than Thurrock.



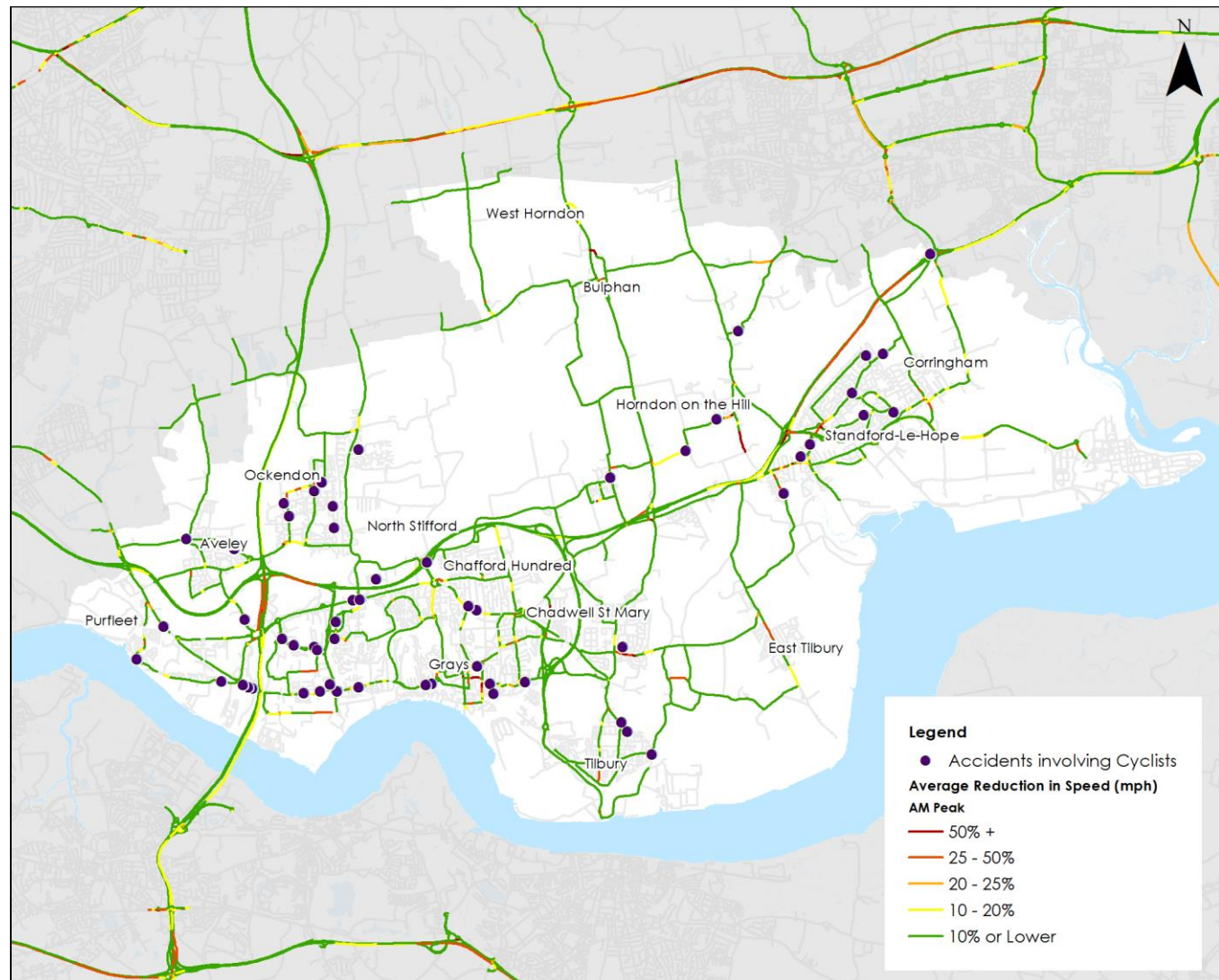
Cyclist Casualties in 2019



Cyclist safety and congestion

This map highlights road traffic accidents involving cyclists over the past three years. The information is overlaid on the AM peak period (08:00-09:00) average speed to indicate any correlation between congestion and poor cycle safety.

The London Road Oliver Road corridor and B186 indicate routes with poor cycle safety records.

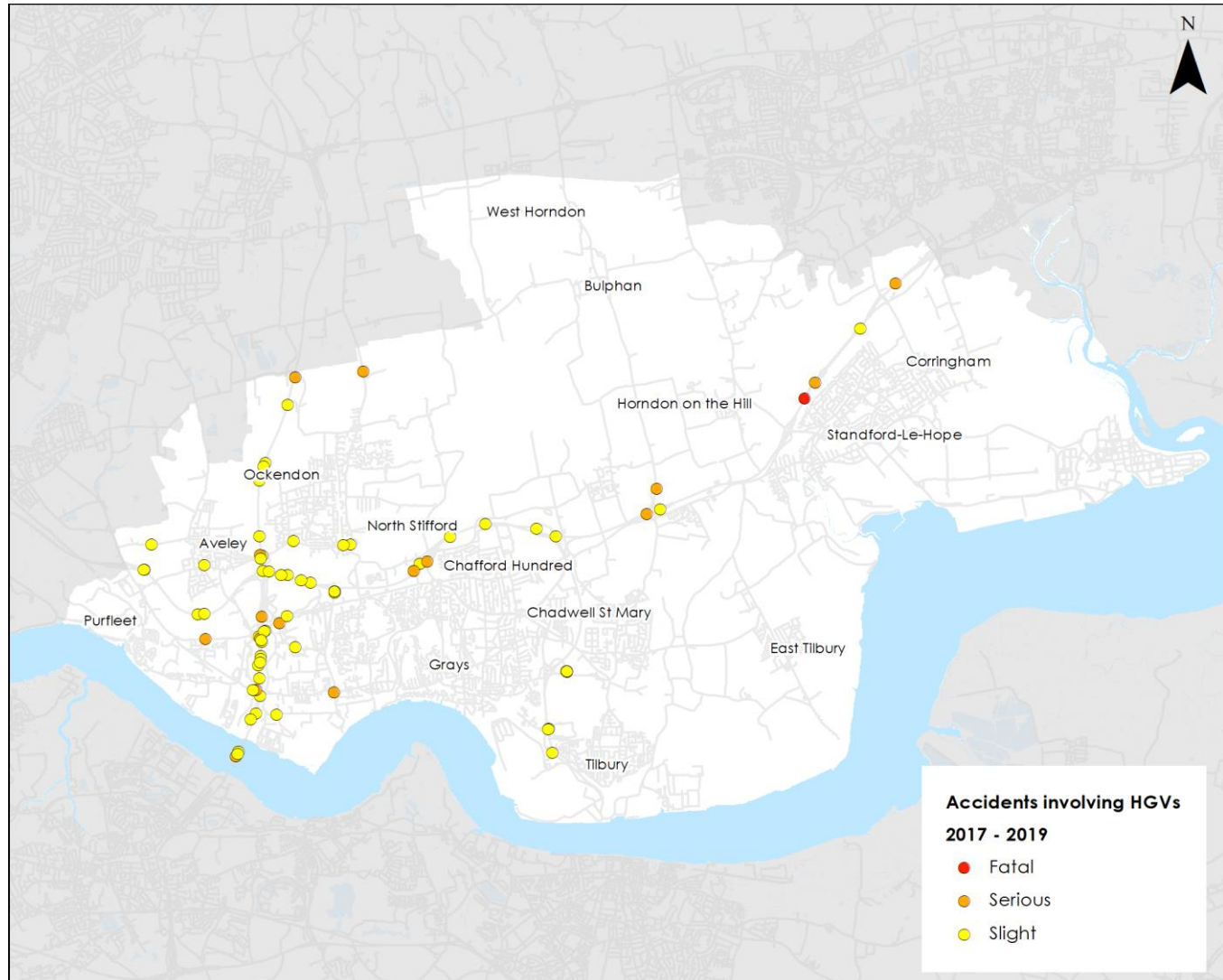


Accidents involving HGVs

Between 2017 and 2019, there were 77 accidents involving HGVs (9%)

One of the recorded accidents was fatal, occurring on the A13 near Stanford-Le-Hope.

The accidents involving HGVs are located primarily on the trunk roads and motorway sections that run through Thurrock (A13 and M25). Some accidents are also located towards Tilbury and Purfleet.



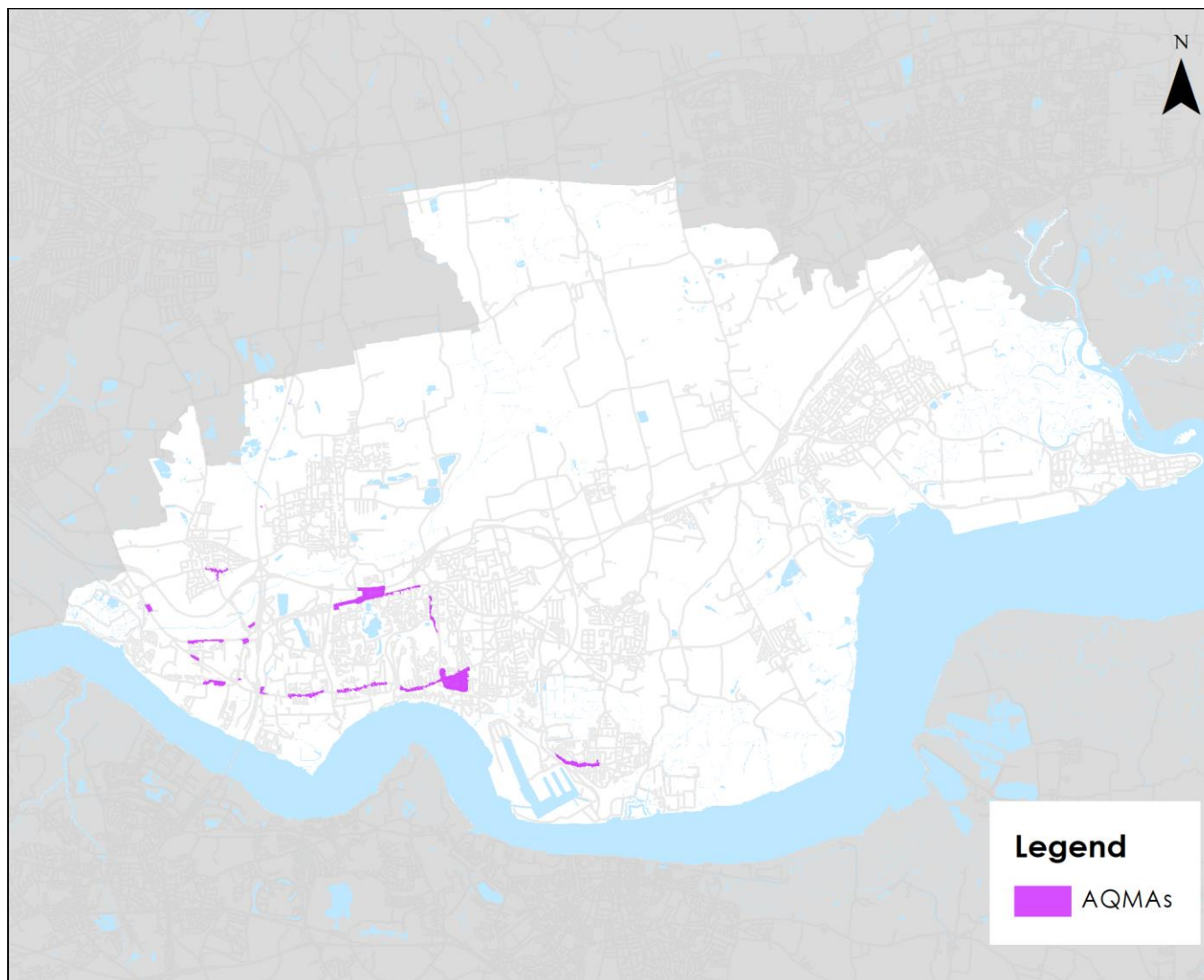
Appendix A5. Pollution, carbon reduction and health data



Air Quality Management Areas (AQMAs)

This map illustrates Thurrock's current Air quality Management Areas (AQMAs). Areas designated as AQMAs are areas that local authorities assess to be areas of possible poor air quality. The objective is to monitor the potential exposure of residents to poor air quality and ensure the national air quality objectives are reached.

Thurrock's AQMAs are concentrated around the Grays urban area and key arterial urban roads.



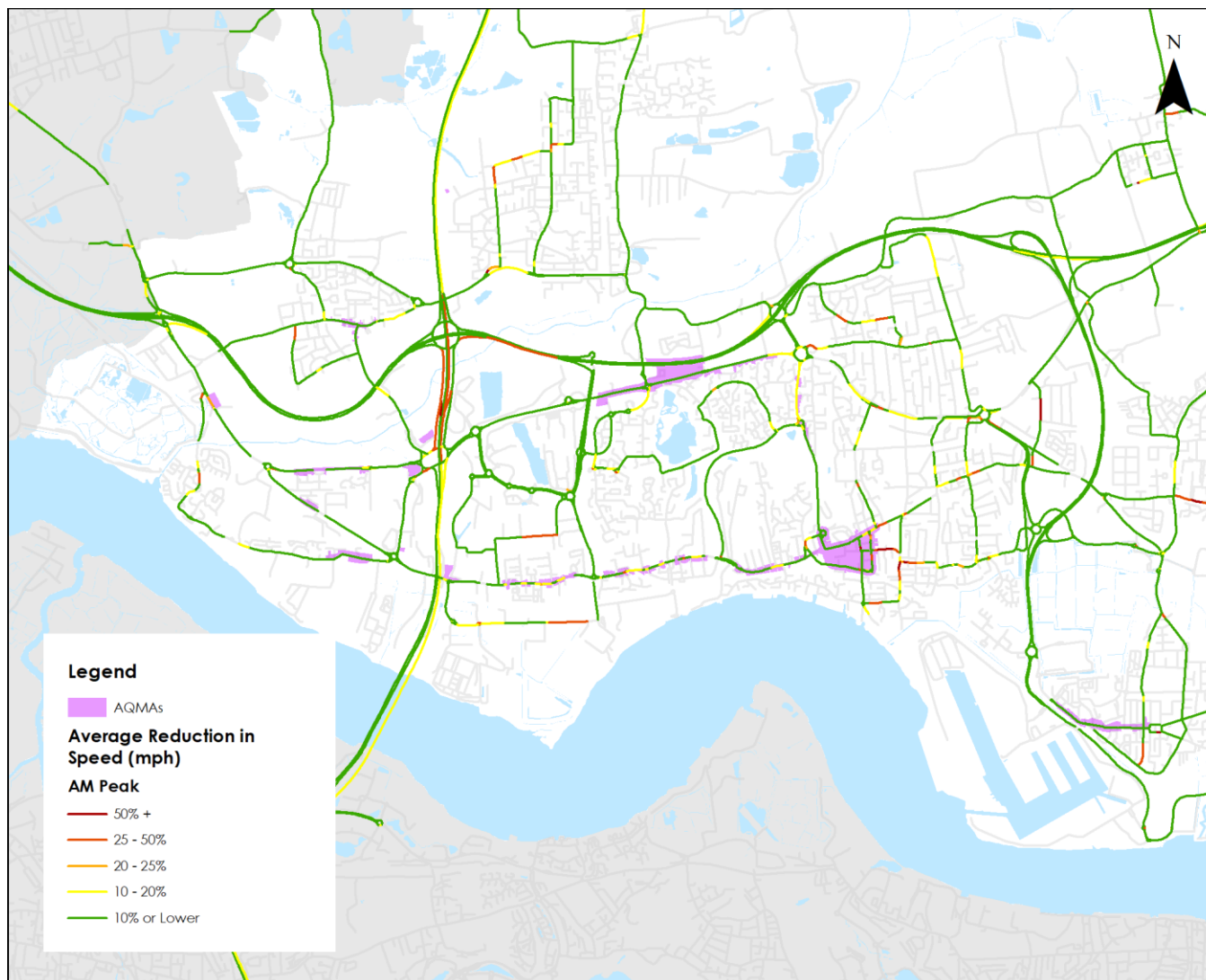
Morning Peak Hour Congestion and Air Quality

This map illustrates AM peak hour congestion levels and location of Air Quality Management Areas (AQMAs).

In particular, the London Road, running west from Grays experiences significant congestion in peak periods and is an AQMA.

Arterial Road North Stifford experience a lower change in average vehicle speeds but is classified as an AQMA.

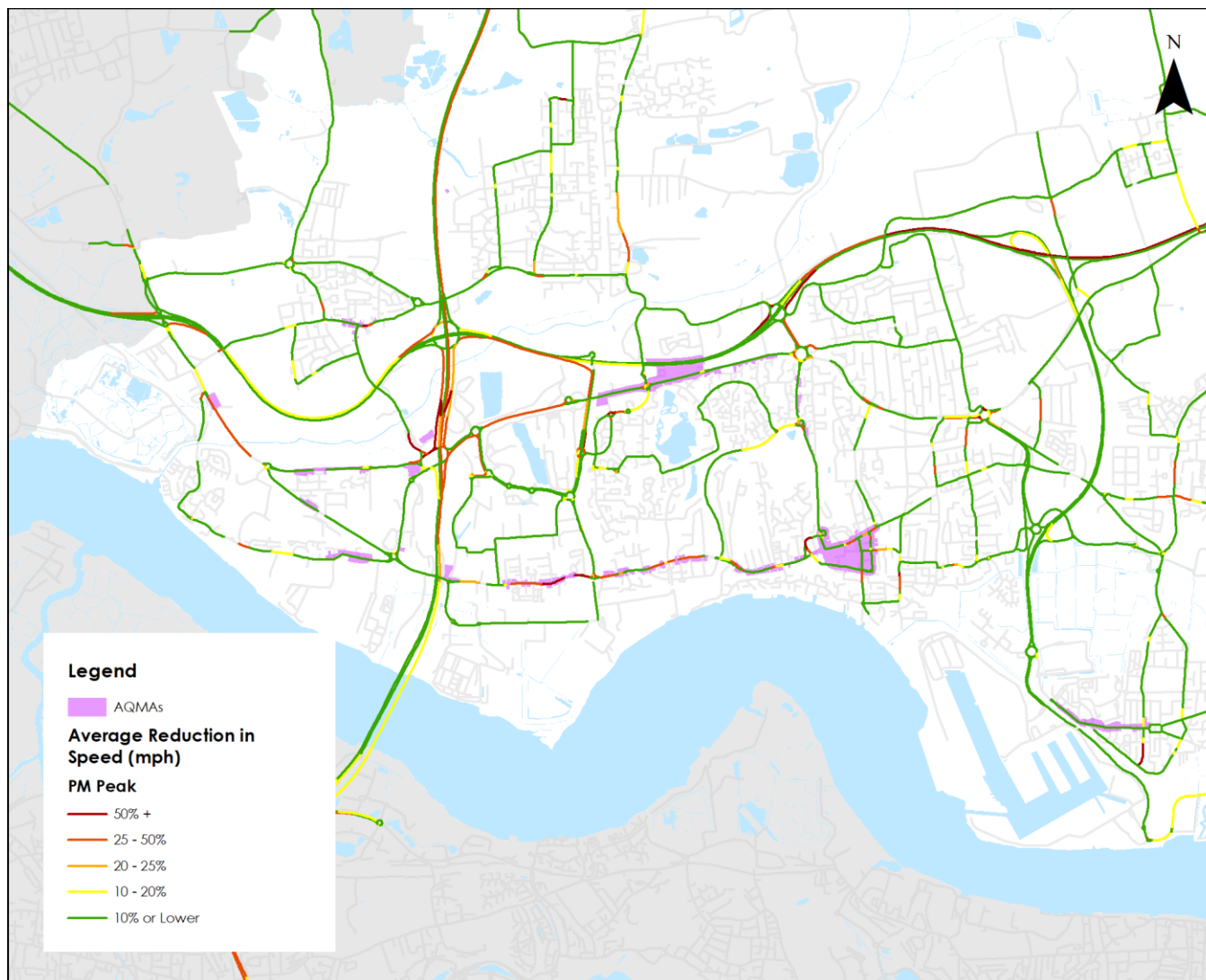
The road network in the AQMA around Grays has delays and congestion during the peak period.



Evening Peak Hour Congestion and Air Quality

This map illustrates PM peak hour congestion levels and location of Air Quality Management Areas (AQMAs).

This includes the Arterial Road North Stifford road that runs east-west parallel to London Road from the M25 motorway. It also includes London Road, running west from Grays which experiences significant congestion in the PM peak and is an AQMA.



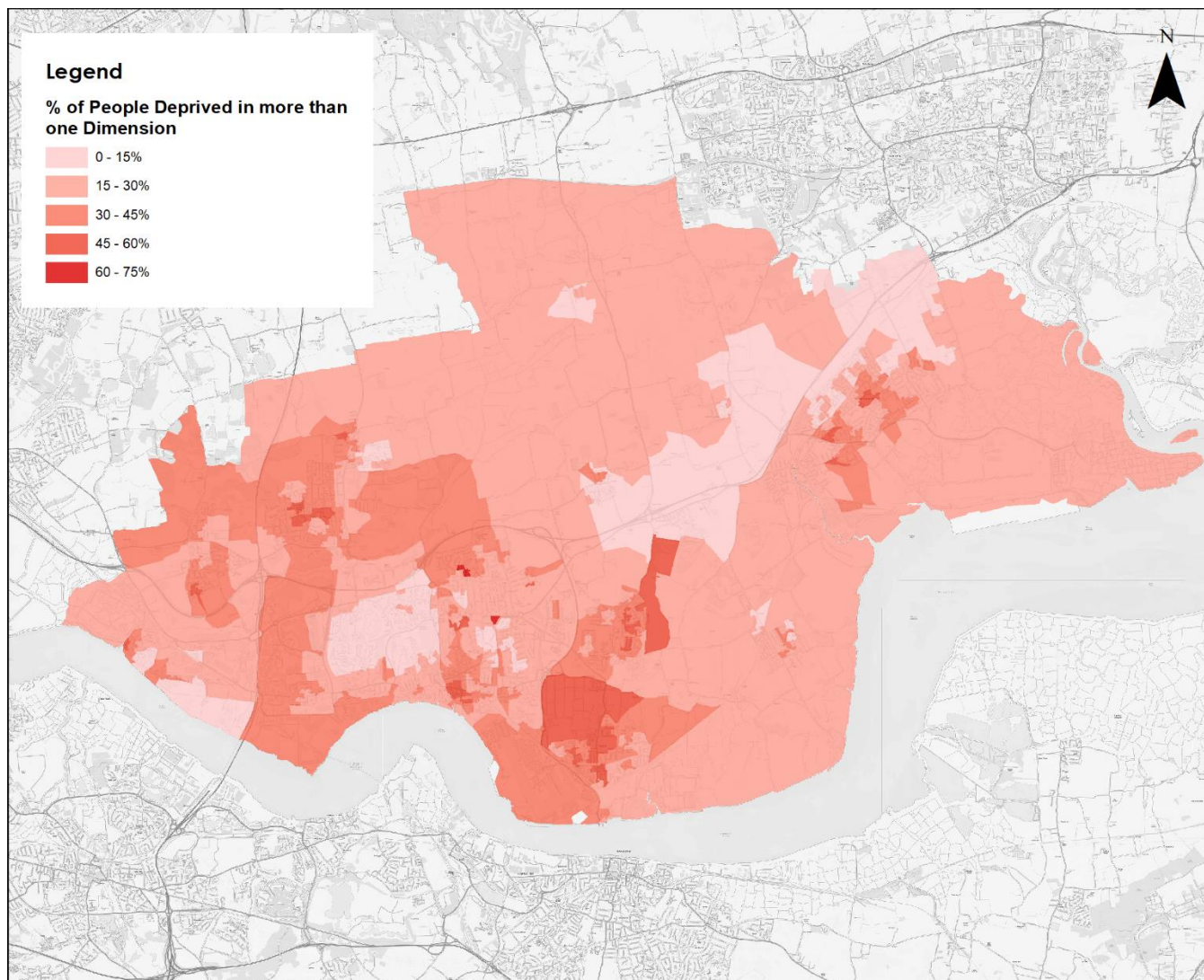
Appendix A6. Affordability data



Dimensions of Deprivation

This map uses data from the Census 2011 and illustrates areas where residents are classed as deprived in more than one dimension (including deprived, bad health and low education).

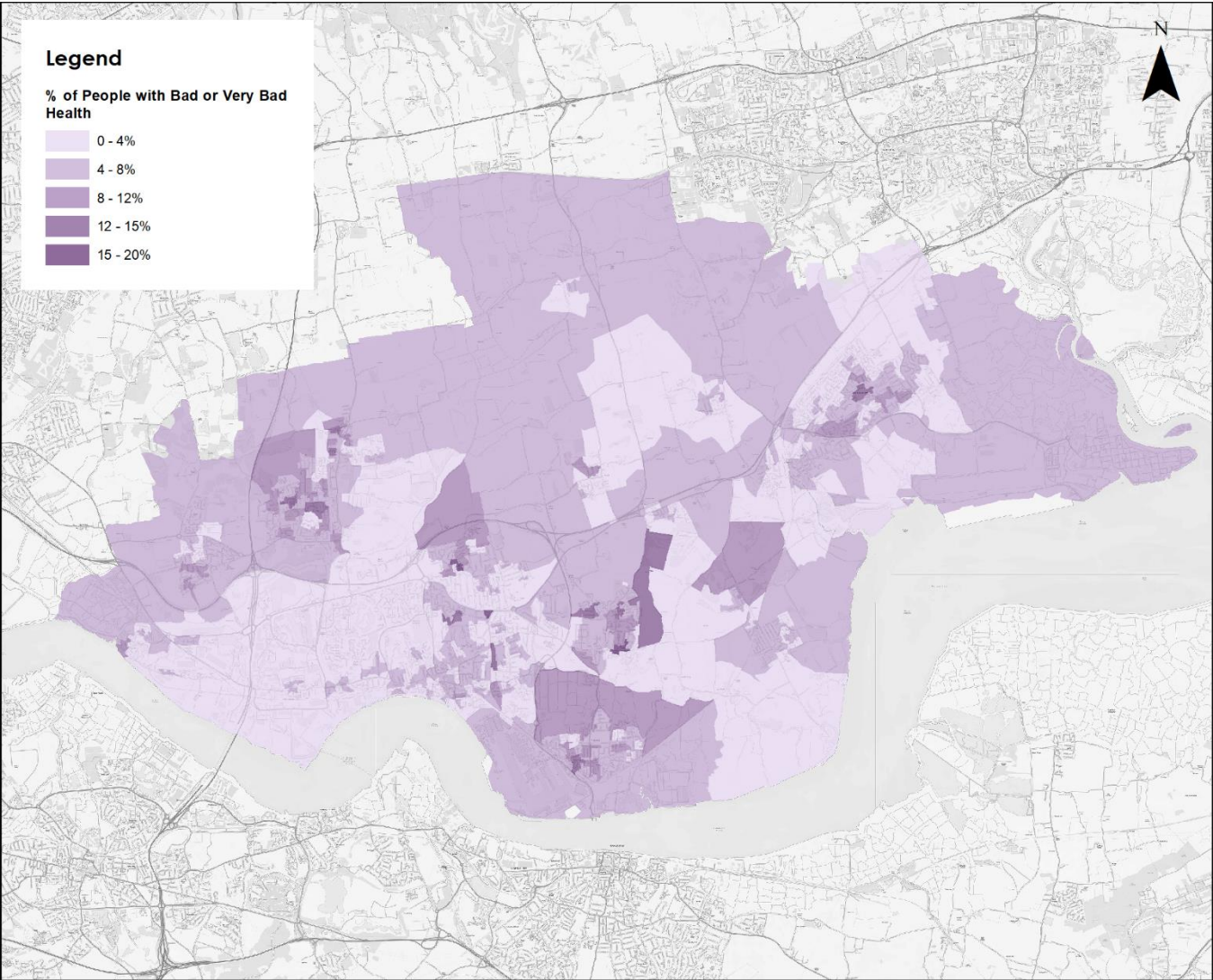
Map shows that the most deprived areas of Thurrock are concentrated around urban areas, in particular, Tilbury and Ockenden.



Health

This map uses data from the Census 2011 and illustrates areas where residents are classed as in bad or very bad health and low.

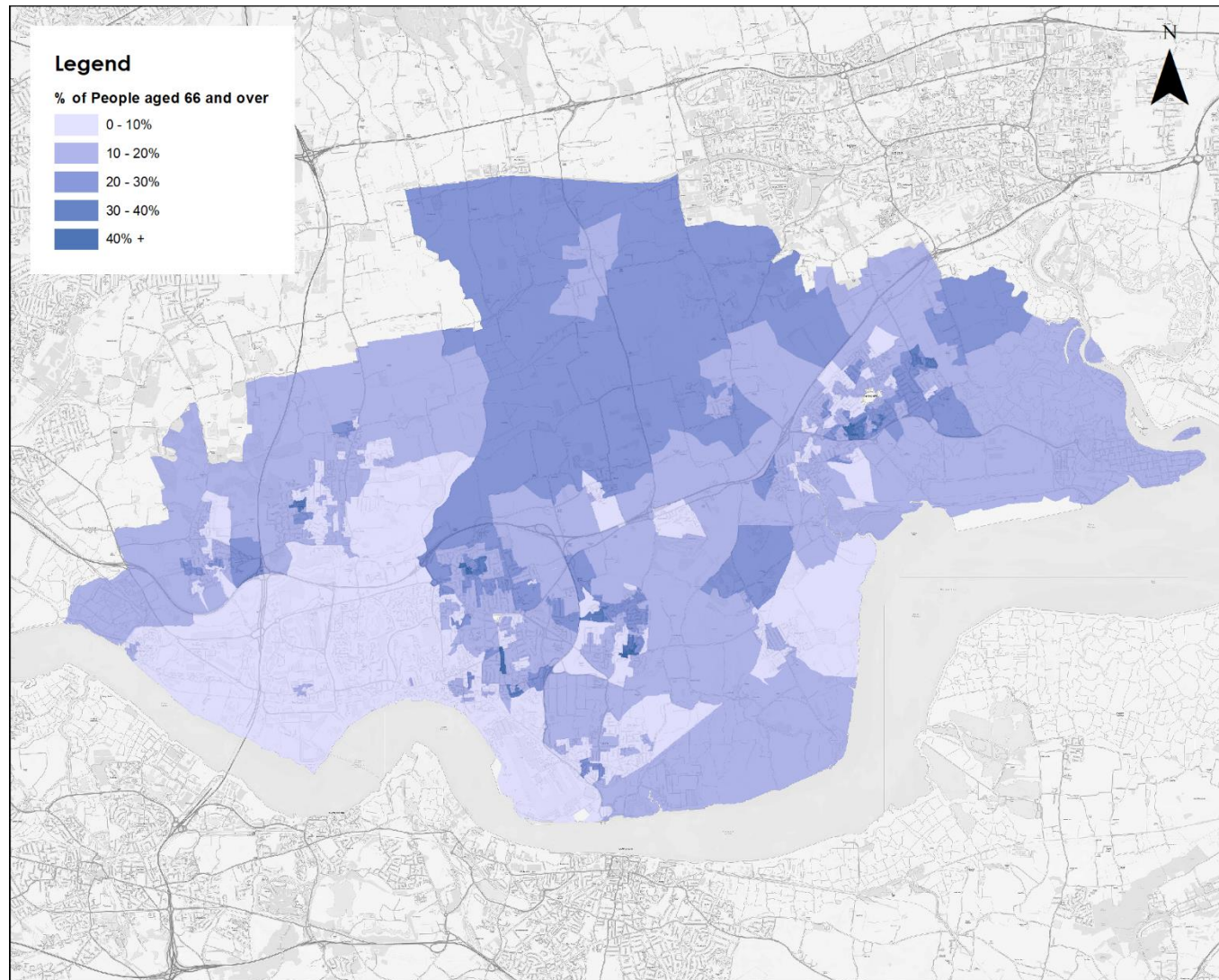
The map shows that the most deprived areas of Thurrock are concentrated around urban areas, in particular, Tilbury, Chadwell St Mary, Corringham and South Ockenden.



Population aged 66 and over

This map uses data from the Census 2011 and illustrates spread of Thurrock residents who are 66 years old and over. It shows a general trend that more rural and suburban areas have higher concentrations of older residents. This indicates younger residents live in urban areas, perhaps to be closer to employment areas.

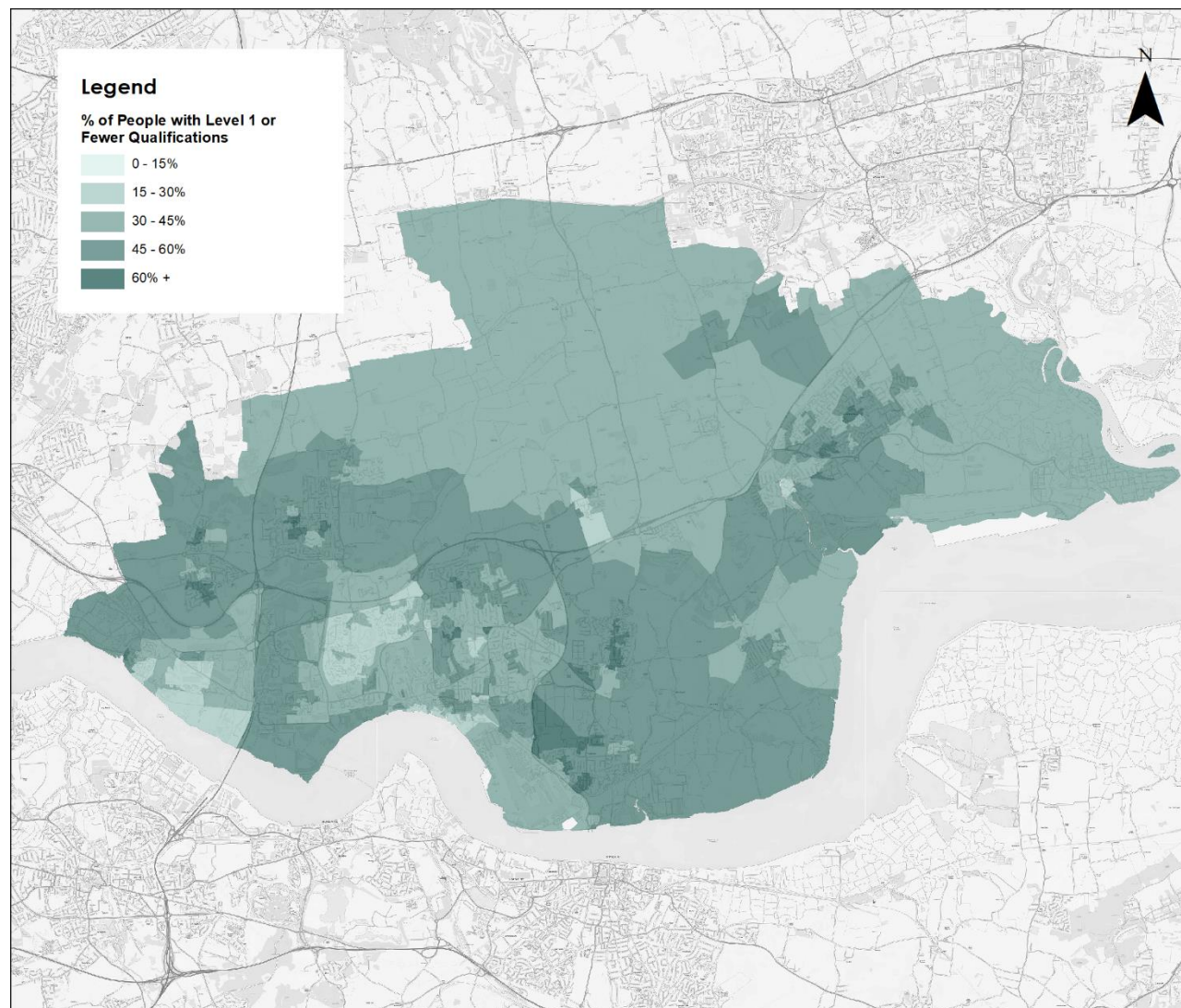
However, there are pockets of areas with high concentrations, 40%+ of older residents in Tilbury.



People with Level 1 or fewer Qualifications

This map uses data from the Census 2011 and illustrates areas where residents have limited qualifications. This is equivalent to fewer than 5 GCSE passes between grades 4 to 9.

The map shows that the most qualification deprived areas of Thurrock are concentrated around urban areas, in particular, Tilbury and Ockenden.



Appendix B – Engagement meeting notes

**Thurrock Local Plan Transport
Evidence - Baseline Study**

Appendix B – Engagement meeting notes

MINUTES

Meeting Title: Thurrock Council Local Plan Review - Transport Base Line - Key Operators
November 2020 and January 2021

Engagement Workshops –

Attendees:

Client Team

Mat Kiely (MK) - Thurrock Council
Sean Nethercott (SN) – Thurrock Council
Nav Tung (NT) – Thurrock Council
Richard Latcham –Latcham Ltd
Sarah Matthews (SM) – Stantec
Adrian Neve (AN) – Stantec
Neil Bateman (NB) – Stantec

Workshop 1 [4th November 2020]:

Alastair Southgate (AS) - Essex County Council
Alan Lindsay (AL) - Essex County Council
Sonia Peirson (SP) – Essex County Council
Janice Burgess (JB) - Highways England
Esme Yuill (EY) - Suffolk Council / Transport East
Trevor Hutchinson (TH) – DP World
Paul Brooks (PB) – DP World
Gordon Pratt (GP) – Kenextram
Paul Dickson (PD) – Ensign Bus

Workshop 2 [17th November 2020]:

Barry Sicklemore (BS) – Stagecoach
Jason Dalby (JD) – Segro
Geoff Symonds (GF) – Thames Clippers
Michael Atkins (MA) – Port of London

Workshop 3 [18th November 2020]:

Jason Dalby (JD) – Segro
John Speakman (JS) – Port of Tilbury Ltd.
Martin Friend (MF) – Vincent-Gorbing (PoT)

Workshop 4 [7th January 2021]:

Chris Atkinson (CA) – C2C (Rail Operator)

Job Number: 49722

MINUTES

Item	Subject
1.	A standardised presentation was used for all workshops to provide background to the study purpose and to set the study within the context of the overarching Local Plan review for Thurrock. Topics Covered at Workshops: • Introductions • Overview of Local Plan and the Study • Purposes and Timescales • Study Topics • Headlines and data from Key Operators A copy of the presentation, as given at Workshop 1, is appended to these notes of the engagement workshops / calls. All engagement was carried out using remote / virtual calls during the COVID-19 pandemic. The presentations were tailored marginally to the attendees at those meetings, abridged as necessary. The primary objective, however, of all meetings was to: • introduce the process; • outline the data that has been reviewed through the base line study; • understand better the data that stakeholders could provide to assist with the base line; • explore the primary challenges that those stakeholders have with transport and travel within the Borough; and • consider how that might be evidenced through further data assimilation and analysis as part of the development of the new Local Plan for Thurrock. The following are headlines from the meetings.
2.	Workshop 1 (sub group 1) TH and PB (DP World) • TEP proposals could perhaps be differently focused to allow residential to be delivered on existing brown field sites to facilitate shifting other commercial/industrial uses to TEP. • Rail freight capacity is important to DP World. This will require investment in additional capacity. The balance between rail passenger services and freight services is important to DP World but the two typically use different lines. • TH raised issues with future employment sites and a major lack of freight and passenger capacity today within the current network, which will significantly restrict the potential for growth in the Local Plan. • TH highlighted a need for wider thinking and joining up rail freight and passenger issues, which have a major impact on sustainable growth in Thurrock. The bottlenecks on the rail network are a barrier to growth, but it's not clear to what extent. These capacity problems exist inside and outside Thurrock and are a regional/national issue.

MINUTES

Item	Subject
	• SN noted the points made and suggesting a follow up session on rail to better understand current challenges as well as growth needs for rail freight associated with the Ports. • PB agreed with issues raised on rail freight and the heavy rail network in general making the point that in projecting forward we need a vision for heavy rail strategy beyond CP5/CP6. • PB noted the balance of investment in rail freight between Felixstowe and Thurrock Ports needed to be revisited. TH noted negative growth at Felixstowe and wondered if rail freight investment should be focused on Thurrock. This should involve an investigation of the feasibility studies already produced, seeking to draw out issues and look for common ground with potential partners for a way forward. • Brexit will derive more port-centric growth and as such needs to be recognised on the policies and commitment in the Local Plan. • Freight transshipment to London by river would be challenging at large scale, rail freight is key to the strategic nature of DP World. Road freight traffic serves mid-distance freight, rail freight serves important high volume longer distance distribution. • TH raised a number of issues on the Lower Thames Crossing proposals and the associated Development Consent Order process going forward. SN noted that for the Local Plan and supporting transport strategy the key will be exploiting the local opportunities offered by the LTC. • LTC is viewed as of limited value to DP World for southern markets as key focus is Midlands and the North. • DP World has identified possible need to look south of the river for workforce. Better local connectivity between north and south of the Thames for workforce is important together with improved access from Essex. • DP World provides monitoring data to the Council which can be used to inform this study. Further peak-period data can be provided on request. Public Transport Network • PB highlighted current congestion and delay issues that create major barriers to delivering an efficient bus service. PB highlighted congestion, especially at roundabouts in the borough and a lack of bus priority at major hot spots throughout Thurrock. • Junction 31 was mentioned as a particular challenge, especially involving HGV's exiting the services then blocking the junction. This is a major transport issue for bus services reliability and options should be considered that seek to shut/restrict access to support local movements. • Issues for bus services was also highlighted for the LTC proposals including the need to close points of access when congestion occurs on the strategic network causing serious local congestion. • PB raised the issue of future development size needing to be sufficient to be able to deliver commercial viable bus services to communities. • PB sought that the refreshed transport strategy will recognise that Thurrock needs an efficient, integrated and high-quality bus network that can support growth in the most sustainable way. GP (Kenextram) • Network Rail should consider W12 gauge upgrade to allow for refrigerated freight use – helping to avoid impact on London. • GP outlined some of the work and proposals for the Kenex Tram. The headlines included opportunities for sustainable infrastructure, cross-river connections, air quality improvements, access to new employment catchments and growth and regeneration. • Concurrent use of LTC tunnels by tram (below road deck level) has been considered by Kenextram and HE. Separate tunnelled connection between Grays and Swanscombe Peninsular is considered more cost-effective and could link with local bus services north and south of the river. • Kenextram have been in discussion with London Resort developer. • North-south connectivity was also raised by the sub-group as a major issue, especially for public transport services. Finally, a brief discussion took place on cross river connections and the need to breakdown the barrier of the River Thames.

MINUTES

Item	Subject
	PD (Ensign Buses) • Key influences on bus reliability are traffic congestion, the lack of bus priority lanes and problems at roundabouts. Useful additions would be priority filter lanes and priority at signals. • Junction 31 is a major challenge due to blockages, particularly including HGV traffic. • LTC could deliver opportunities for bus services towards the Medway Towns and Chatham; however, it was noted that the current configuration of the route does not facilitate public transport connectivity. • The current catchment at East Tilbury is too small currently to generate sufficient passenger demand for commercially viable public transport connections. Growth in that area would help viability of services.
3.	Workshop 1 (sub group 2) AS (Essex County Council) Essex has identified the following challenges for the area: • Car dependency • Decarbonising transport • Access to Ports • Access to Thurrock employment destinations from outside Thurrock – with a focus on improved access from Basildon • Freight related access to the Ports (Highways England and Rail networks) • Rail and Public transport – to change how we travel, i.e. reduce car use DATA/EVIDENCE: ASELA Transport Strategy by Arup DATA/EVIDENCE: Network Rail's capacity study on Essex Thameside MK agreed it will be important to enable other forms of travel AS noted anecdotal evidence – some people think the A127 is fastest and some people think the A13 is fastest – this relates to network perception, issues around J30 (real and perceived) and the lack of journey time / VMS info Challenges: • Access to the Ports from Basildon (via non-car modes) EY (Suffolk Council / Transport East) DATA/EVIDENCE – there may be opportunity to share information between the Transport East study and Thurrock's Local Plan baseline study. Jacobs are working on Transport East's baseline studies, covering many disciplines, not just transport. Drafts are expected at the end of November/early December. Public consultation will progress in summer 2021. Thurrock Council (Mat Kiely and Richard Latcham) met with Adam Thorpe at TE regarding this study. A combined meeting is being arranged with TBC, Latcham, Jacobs and Stantec. Challenges are seen as: • Freight/global gateways

MINUTES

Item	Subject
	• Decarbonisation • Rural/urban connectivity – connected towns – connections to the Fens (Thurrock) • National economic recovery & growth • Pollution – particularly related to HGVs AL (Essex County Council) DATA/EVIDENCE – Jacobs working for Essex and Transport East therefore have access to significant data JB (Highways England) • Other initiatives may be necessary at Lakeside, such as home deliveries to allow shoppers to have their goods taken home, to allow them to walk, cycle and/or use the bus • The Local Plan process will need to consider how the long-term effects of London Resort on Thurrock DATA/EVIDENCE – data from regional models DATA/EVIDENCE – development planning applications have data Challenges: • To understand the role the strategic network takes in helping the Local Plan come forward • The role of the A13 and A127 parallel to it • (long term impacts of London Resort – post breakout session) SM / NM (Stantec) Discussion on Lower Thames Crossing: • The similar journey times on the A127 and A13 are seen in the modelling and switching between the routes • Lack of access to Thurrock urban area and Tilbury from the LTC • The current scheme does not deliver any improvement in public transport access • Severance of the scheme in the context of the potential development the growth areas for active modes and public transport • Impact of the scheme on the operation of A13 east of the LTC, at Orsett Cock and The Manorway junctions Baseline studies indicate: • limited bus priority • limited off-road cycleways MK (Thurrock Council) • raising awareness of cycle and bus routes will be important, it is not just about infrastructure. Anecdotal evidence – Lakeside is a good example where people live nearby, but people choose to driver, because they are not aware of the alternatives.

MINUTES

Item	Subject
	DATA/EVIDENCE – LSTF provided information on this
4.	Workshop 2: GS (Thames Clippers) • River bus expansion plans were shared with the workshop • London resort gives an opportunity to bring people in to the development via river bus Park and Ride • The vision for the river bus is that the service will connect the London city centre to Thurrock within an hour • Modelling has been considered, but the question is the reliability of the inbound data, and this introduces risk of too many assumptions • Bus interchange with ferry is important, and could be marketed/ expanded for Tilbury • Cycles can fit on vessels, and the relevant infrastructure should be built on or around the new piers • The clipper is a private business and is not subsidized • New vessels to be built with hybrid fuelling, and possibly hydrogen fuel use over the longer term • Open to off peak ferries, to London Resort as a possibility, if demand is there it can be provided • Designs have been done for two piers • New piers may be operational by 2023 • There will be a delivery trial this year in west London going through Bow • Potential for delivery sorting on the boat, and larger scale operations MA (Port of London) • The vision document is from 2016, but may be updated • The Agent of change principle should be applied in local plan considerations, development in close proximity to noisy functions or industrial sites should take that into account • The intent is to maximise pier use, so passengers in day and freight at night • TfL are looking at use of passenger terminal use to get deliveries into London because of light van traffic from deliveries MK (Thurrock) • It is difficult to plan for some riverfront options • The riverfront is a massive asset to Thurrock, which is underutilized • It is feasible to encourage mode change and encourage active and public transport options • Air quality is a key consideration, transport mode change helps with health and activity as well as getting development transport • Various measures have been taken to try and improve the M25 pinchpoint and increase resilience • Congestion around the A13/Manor Way and impact of LTC will be considered JD (Segro) • Reiteration that roads are all too congested

MINUTES

Item	Subject
	- Logistics and freight are not peak time movements - Segro can help provide data and studies for use in the study - The mix of development is important, in terms of the resultant impact - There is an issue of how we could use passenger terminals to get deliveries or product into London - Maritime at Tilbury are looking at this - LTC makes planning difficult - Is the plan going to be valid if LTC stops? BS (Stagecoach) - The bus route is sensitive to M25 disruption - TfL will be able to provide data and plans for future routes - Patronage is down on the route 372 - Modal shift is towards private vehicles - Conversion of garages to electric is ongoing, it's an ongoing process and will have 60-70 garages done by the end of the year
5.	Workshop 3 JS (Port of Tilbury) - Phil Hapshore is PoT Consultant. (iTransport) - PoT are working with Segro as joint venture. - Tilbury 2 DCO can provide data on transport and access. - London Resort, Thurrock Energy and LTC DCOs will also give additional data. - Ro-Ro facility for P&O is now functional. - Tarmac facility has private rail siding. This will begin to operate soon for aggregates, ready-mix, asphalt. - PoT have other ambitions for growth/expansion in 2021 seeking to double through-put from 16.5mt by 2030. JD (Segro) - Segro are looking to enter into a PPA. MF (Vincent Goring) - PoT continue to seek construction of the Tilbury Link Road. - MF noted that A1089 is at the end of the trunk road. This brings challenges that will need to be managed by HE which will need to be managed within the Local Plan. - Other key challenge points are M25 junction 30 and A1089 connectivity to LTC/A13. - Speed and reliability of access is critical to PoT to allow predictable and smooth movement of freight eg paper printing, health services and grain terminal functions are time critical.

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	- HGV parking is important to assist with port management. Drivers have been observed waiting on entry or exit to the port, perhaps to avoid paying toll fee on A282. PoT has approximately 20-22 acres of lorry parking, but additional off-site facilities would assist with operations. Approximately 6-7 acres will be allocated at London Distribution Park (LDP). - Public transport access to PoT is critical for workforce to complement PoT to travel plans. This needs to reflect shift working and current real time information provision. PoT is subsidising the Tilbury Ferry with Thurrock Council and Kent County Council. PoT are happy to work with TC on how working schedules are profiled. - Port of Tilbury is an employment hub and therefore the quantum of people gives opportunities for public transport. PoT employs approximately 700 staff with a further 4,000 across other tenants at PoT. - Amazon has a system of shared transport, but take-up is thought to be poor. - PoT has worked closely with HE. Improvements at Asda roundabout have helped cycle route connections and pedestrian access. - Links to the south of river are important for workforce and education. - JS considered that the Thames Clipper and Tilbury Ferry would be complementary. - PoT and London Thames Gateway will be putting in a bid for free port status with connections to freight facilities in the West Midlands.
6.	Workshop 4 CA (C2C) The first point which should be acknowledged is that a lot of things we thought we knew now we don't know - because of Covid. Degree of behaviour change - If C2C take the passenger figures for feb 2020 as 100%, based on previous trends, the patronage should now be around 103%. C2C are actually at 26% pre covid. - During the first lockdown a similar level of patronage was seen initially and gradually rose up to 30% by May. - After coming out of lockdown patronage reached a high of 42-44% - During this period of general passenger suppression Thurrock is a busier area, Barking is busiest, Thurrock 2nd busiest. - As a general rule, shorter journeys are travelling more, key worker and construction, there are low office worker numbers. - The Demographics of each borough are the determinant of who travels. - The busiest services are trains for Fenchurch before 07:30, boarding around 06:30 at Grays. A new peak in the morning is very clear, with the previous peak being the traditional office hours pattern. - The Chafford line is particularly busy because single track line, so limitation on carriages that can be added. - Looking forwards, 80% of pre-covid levels may be long term reasonable expectation, over 2 years. If this expectation is fulfilled, there is also expected to be uneven demand over days, for example 70%/90% as a 3 day in-office week might be the new norm. More general challenges/issues - A particular fare avoidance issue was found with sectors of workers, as well as very large flow to Tilbury causing some capacity issues. Going forward as more logistics centres are brought online this issue may need attention. - The Thurrock line is one of the busiest national rail routes

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	• A high rail mode share is noted around stations, possibility of capture of economic activity by Thurrock if environment and offer is conducive to retaining / optimising complementary customer spend at facilities around the stations. • C2C is one of more affordable lines into London. • Strong commuter growth has potential - even if people aren't travelling every day • Regarding the implementation of Smartcards - Principle of flexible and seamless travel into London is attractive, but not expected to be delivered by extension of Oyster system. Direction of travel is from Oyster to contactless payment, which is being looked at by the rail industry as well as smart travel. • C2C have a smart card scheme which is interoperable in London, and C2C wants to move people from paper tickets to smart cards. • In the longer term rail fares' reform will impact the attractiveness of contactless payment for regular travellers so that returns can be cheaper using contactless payment. • The existing transport links to rail stations are adequate for the moment, but for the long term may need improvements to accommodate port and employment growth. • Regarding the potential North Corringham station – C2C view is that getting people into existing stations is preferred to putting new stations in, each station has implication on timetable and signalling. Room for one more station at most on the route , because of turnaround at Fenchurch St station. Development near Dagenham Docks is likely to be the one that gets a new station. • As the network is running at lower capacity at the moment this may allow scope for change. Further discussion would be needed. • New trains are on the way, due in the next 18 months, which will add about 20% capacity on trains, headroom for around 2 years. • To increase capacity over the longer term, the preferred solution would be to increase frequency, as lengthening of all trains has infrastructure issues, and congestion issues on platforms. This leads to performance issues. • Higher frequency requires improvement to signalling infrastructure, with onboard GPS, constant monitoring. Working with the DfT suggested that this could deliver 24 trains per hour.
7.	Workshop 5 – Network Rail • Andrew was leading on the essex/thamesline study • This was a long-term rail study - what needed for fit for purpose for 20-30 years, particularly about capacity, published during the pandemic. It addressed passenger capacity on-train, how it can meet demand, particularly in the AM peak • Network Rail are looking at a possible strategic outline business case for train lengthening • Looking also at station capacity: ○ Fenchurch, ○ West Ham ○ Barking • Key recommendations from the study still the priorities, broad support from C2C and TfL for the recommendations and unlocking funding is the current challenge • Greys Station, the 3rd platform is only 8 car length, could increase to 12 car, would like to look at under business case development • Thurrock are involved with the level crossing replacement in Greys, which is ongoing • Transport and works act order proposing to close a number of level crossings in Thurrock, unknown when decision might be made • If trains were to increase on any C2C routes this could mean level crossing risk increase and therefore need considering whether foot or vehicle

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	• Level crossings should be considered as potential impact on transport and safety, taken seriously and might be worth • It would be helpful for Thurrock to support the studies and coordinate action on infrastructure where possible

**Thurrock Local Plan Transport
Evidence - Baseline Study**