Decide and Provide:

# Transport Assessments in Lancashire guidance

Highways Development Control
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Lancashire County Council

| Decide and Provide | |
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# Contents



*This document is designed to offer comprehensive support and guidance, detailing the necessary steps and considerations for completing and reviewing Transport Assessments using the "Decide and Provide" approach. Any necessary actions to address issues and concerns must be progressed and concluded to the satisfaction of the Local Highway Authority; the use of this approach does not negate the need for adequate consideration of highway impact and appropriate mitigation of these. This is a* ***live document*** *and is updated.*

# Introduction

*This guidance, prepared by Lancashire County Council (LCC) in its role as the Local Highway Authority (LHA), is intended for Local Planning Authorities and developers. Its aim is to provide guidance supporting a 'Decide and Provide' approach for those completing and reviewing Transport Statements and Assessments. As a live document, it will be updated as this approach becomes more widely adopted. Please note that this guidance considers the latest draft of the National Planning Policy Framework (NPPF) dated December 2024.*

# Background

1. The planning process for development is led by the Local Planning Authority (LPA) with involvement from Statutory Consultees and from a highway perspective the Local Highway Authority (LHA), Active Travel England (ATE), and National Highways (NH). It gives all stakeholders the right to representation to ensure development of the right type and scale, in the right location. This process aims to ensure that new developments are sustainable, meet the needs of the community, and align with local and national guidance, practice, policy including the National Planning Policy Framework (NPPF). This guidance has been prepared to support those completing Transport Statements and Assessments in the transition to vision-led planning (Decide and Provide).

2. The Local Highway Authority requires planning applications that generate a significant amount of movement to be accompanied by Transport Assessments or Statements to evaluate the impact on local infrastructure and promote sustainable travel. These should:

- Measure and evaluate the transport impacts of a proposal
- Assess transport constraints and opportunities, such as the availability of walking routes and bus services, and local highway network conditions.
- Take a multi-modal approach that considers all modes of transport and purposes, across various key locations, throughout the day.
- Identify mitigation necessary to support the development proposal.
- Should satisfy the Highways Authorities that the development does not prejudice:
    - The expeditious movement of people and goods (Traffic Management Act 2004)
    - The safe use of the highway (Highways Act 1980)
    - Vulnerable Road Users, such as those with mobility or visual impairment (Equality Act 2010)

3. Decide and Provide offers a step-change in how transport is assessed, with a greater focus on vision, different scenarios, and measuring success of interventions. All developments that generate a significant amount of movement should be supported by a vision-led transport statement or transport assessment. They should:

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***Decide** what the vision is. This should be a clear, achievable statement that sets out the end goal. It should be measurable through effective monitoring.*

***Provide** this, using validated models, strategies, mitigation and decisions that are evidence led, verified for accuracy, and effective in addressing accessibility, mobility, and sustainability goals, without prejudicing the statutory duties of the Highways Authorities.*

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4. Transport issues should be considered from the earliest stages of plan-making and development proposals, using a vision-led approach to identify transport solutions that deliver well-designed, sustainable and popular places (NPPF 2024, Paragraph 109). Supporting Travel Plans should include monitoring (NPPF 2024, Paragraph 118) *[see: monitoring and review]*. Evidence should be used to inform future development proposals and their assessment.

5. Decide and Provide should incorporate good practice guidelines such as Local Transport Note (LTN) 1/20, Manual for Streets (MfS), and those relating to walking, including Inclusive Mobility. Developers should also consider other guidance, such as Active Travel England's policies aimed at increasing walking and cycling. It is important that good practice guidance is bettered and not simply followed (i.e. walking and cycle distances).

## Vision and Aims for Lancashire

6. To support the implementation of Decide and Provide, we have prepared our own Vision and Aims, including how the County Council will monitor and improve the success of Decide and Provide in Lancashire.

The Lancashire five-year plan sets out our shared ambitions for the future of our county:

- Better lives for all

- Economic ambition
- Stronger communities
- Thinking differently

These ambitions will guide how we work together to deliver positive change for Lancashire's residents, businesses, and communities. This will help us with our vision of building a better Lancashire where everyone can live their best life through stronger communities, a growing economy and high-quality public services.

7. Sustainable transport plays a key role in helping us to achieve our vision. Set out in the table below are the key aims for development we are setting out with this change in approach and the reason behind this aim. These include measures the authority will take to monitor this approach to Transport Assessment.

| Challenge | Aim | Reason | Authority Measure |
|---|---|---|---|
| **Commercially Sustainable Public Transport** | All new development to have long-term commercially sustainable public transport. | New developments in isolation generally fail to achieve commercially sustainable levels of public transport use, requiring public funding to remain operational. Without this, there is a risk of service provision and routing changes, disadvantaging users and limiting sustainable transport options. | Monitor level of funding to public transport services associated with new development.<br><br>Monitor service cessation at new development after pump-priming ceases, having regard to its use and revenue collected. |
| **Transport Links** | All new development will have suitable transport infrastructure, as well as good provision and frequency of public transport services. | Transport links from sites to key locations vary in their level of provision across all modes. This variability affects the uptake of sustainable and active travel options. | Monitoring infrastructure delivery<br><br>Public Transport Services to support development should have services to key locations ideally every 30 minutes (weekday, daytime), but also include suitable level of provision during evenings and weekends |

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| **Timing** | All development will have improved strategies that better consider phasing and sustainable travel measures. | Occasionally poor transport habits are embedded before there is a critical mass for public transport services. Enhanced interim strategies are needed. | Work with developers on more effective development phasing and timing of measures.<br><br>Use Travel Plan surveys to gauge effectiveness. |
| **Engagement** | Enhanced engagement and ensure a shared vision for transport. | Work to improve engagement with transport and have a shared vision. | Local Transport Plan 4 Publication.<br><br>Improved awareness of Local Cycling and Walking Infrastructure Plans (LCWIPs).<br><br>Work closely with developers, Active Travel England, National Highways and other stakeholders. |
| **Network** | To enhance sustainable travel infrastructure from development. | Quality of infrastructure varies across areas | Request all submitted Travel Plan monitoring surveys are multimodal, to monitor cycle and walking levels.<br><br>Explore how to monitor LTN 1/20 compliant infrastructure delivery levels.<br><br>Work closely with developers, Active Travel England, National Highways, and other stakeholders. |
| **Scenario Testing** | Where applicable require 'do-minimum' scenarios with reasonable | Transport Assessments lack a variety of scenarios, which can be detrimental to planning. | Publish Decide and Provide Guidance and provide advice on scenario testing as part |

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| | assumptions as a baseline, followed by additional scenarios. | | of pre-app and planning process. |

8. Developers should consider the vision and aims for Lancashire when preparing their own vision for a development proposal.

# Engagement with the LHA

9. Securing the support of the LHA is crucial for the success of a planning application. Transport Assessments that do not clearly outline the likely impact of a development proposal will not be supported; they must meet the requirements of the NPPF 2024, Paragraph 118.

10. Pre-application highway advice from Lancashire County Council (LCC) is available for a fee. Early engagement can help applicants to overcome potential issues related to traffic, road safety, and infrastructure, and ensure proposals align with policies and standards, reduce the risk of objections and delays.

11. To enquire about the LHA's pre-app service, please visit the pre-app web page: https://www.lancashire.gov.uk/business/business-services/pre-planning-application-advice-service/pre-planning-application-highways-advice-service/

12. All matters relating to movement and your proposal must be discussed with the LHA, including public transport, Public Rights of Way (PROW) etc.

For Highways and Development matters, and Highways Local Plan work: developeras@lancashire.gov.uk
For queries relating to S278, email: S278Applications@lancashire.gov.uk
For queries relating to Highways S106, and payment of contributions S106@lancashire.gov.uk
For queries relating to Road Safety (including commissioning Road Safety Audits): RSA@lancashire.gov.uk
For Signals data (i.e. signal timings): signalsdesign@lancashire.gov.uk
For Traffic Count data: trafficcounts@lancashire.gov.uk

# Part 1: Guiding Principles

*This section of the document outlines the guiding principles for developing transport proposals. It is essential that proposals adhere to the National Planning Policy Framework (NPPF). These guiding principles specifically relate to the implementation of the Decide & Provide approach in Transport Assessments within Lancashire.*

## Guiding Principles

13. Development proposals, Transport Assessments, and schemes should be led by the following guiding principles:

**A.** All modes of transport throughout the day should be considered. Development trips have many impacts influencing safety, congestion and reliability (irrespective of mode). Capacity improvements are warranted in situations where there are benefits to public transport journey time reliability, or where walking, cycling, or air quality concerns are impeded or where lack of capacity could impact on safety as a consequence of congestion or poor driver behaviour. In Air Quality Management Areas, slow traffic levels on corridors or traffic composition can be significant contributors.

**B.** Proposals should evaluate opportunities for vehicular traffic reduction and demand management measures. Measures for different modes of transport should be considered as part of any junction, road route, or corridor improvement schemes. Interventions must maintain the highway hierarchy (in road classification terms) and manage associated risk, such as diverting traffic to inappropriate routes. Demand management strategies—such as parking restraint, improved public transport provision, and behavioural change initiatives—should be explored to reduce reliance on private vehicles and encourage mode shift.

**C.** Routes (for all modes) from sites to key locations should be evaluated for their suitability and safety. Collision analysis should also be extended to these routes to ensure comprehensive safety assessments.

**D.** Proposals should aim to integrate into and enhance the existing transport network, considering all modes of transport and the hierarchy of road users as referenced in the highway code.

**E.** Schemes should consider adverse effects of the proposal and seek to mitigate impacts such as parking displacement into residential areas and diversion of traffic, etc.

**F.** Design should be a key consideration, within, to, and around a site. Functionality should be considered when preparing designs. Parking spaces should be of a sufficient size to accommodate the intended vehicle; electric chargers in their use should not require vehicles to exceed the parking bay; chargers should not obstruct pedestrians; cycle parking should be well-overlooked; and routes should be appropriately designed for their intended uses.

**G.** All users need to be accommodated. When preparing development proposals, it should be ensured that vulnerable road users, such as those with limited mobility (including children and the elderly), visual impairment, or other limiting characteristics, are not adversely affected by proposals.

**H.** All Transport Assessments must be evidence-based (and where reasonable using local evidence and wider/national data to benchmark against). Assumptions made must be clearly stated in an assumptions log. Proposals must not understate traffic impact to facilitate development or have unrealistic future scenarios.

**I.** Ensure alignment with existing highway strategies, plans, or policies of the Local Highway Authority and the Local Planning Authority.

**J.** Early and ongoing engagement with the Local Highway Authority (LHA) is essential. Scoping the assessment area, agreeing on methodologies, assumptions, and data sources should be done collaboratively from the outset. Ongoing dialogue ensures proposals are aligned with local and national policy, reflect local constraints and opportunities, and remain responsive to evolving circumstances. This engagement underpins a robust evidence base, facilitates timely resolution of issues, and supports delivery of sustainable, policy-compliant development.

# Part 2: Overview of Decide and Provide

*This section of the document provides an overview of the Decide and Provide approach. It outlines the four key stages and offers detailed information on the differences between residential, employment, and mixed-use developments; acceptable scenarios; assumptions for permitted, committed, and planned growth; sources of evidence for trip rates; considerations for COVID-19; the use of car reduction targets; and transport modelling for local plans.*

## Stage 1: Developing a Proposal

## Stage 1(a): Establishing the Vision

14. **Decide** what the vision is. This should be a clear, achievable statement that sets out the long-term desired future state. It should be measurable through effective monitoring as part of a travel plan. The vision should be informed by the specific context of the site and should have regard for the key challenges and aims identified in Section 7, including commercially sustainable public transport, suitable transport links, effective phasing, engagement, and scenario testing. However, the vision must not be limited solely to these challenges; it should also reflect the unique opportunities, constraints, and aspirations of the development and its surroundings.

- What are the long-term goals and objectives for the development?
    - Establish accessibility characteristics;
    - Envision the desired outcomes for transport and mobility;
    - Consider factors such as sustainability, accessibility, and community impact.

15. The LHA will expect you to have:

- Based the vision on accurate and up-to-date evidence and data, and accurately assessed the accessibility characteristics;
- Engaged with stakeholders, including local planning authorities, residents, and transport providers, to gather diverse perspectives and help to ensure the vision has collective support;
- Considered key attractors and locations of future growth when forming a vision, with attention to the types of activities that need to be satisfied;
- Considered the lifetime of the development;
- Considered demands (i.e. parking provision (and accumulation), pedestrian and cycle connectivity, servicing requirements) ;
- Outlined the principles and criteria that will guide decision-making throughout the project;

- Agreed on the vision with the LHA.

16. In assessing the site characteristics, it may become clear the vision needs to be adjusted. Lancashire is varied, and opportunities to maximise sustainable transport solutions will vary between urban and rural areas. Significant development should be focused on locations which are or can be made sustainable.

## Vision-led infrastructure

17. The vision for a development will be reflected in future scenario testing [*see: scenario testing*]. When developing this vision, consider infrastructure requirements to realise the vision and:

- Use a vision-led approach to identify transport solutions that deliver well-designed, sustainable and popular places *(NPPF 2024, Paragraph 109)*
- Ensure that:
    - Sustainable transport modes are prioritised, taking account of the vision for the site, the type of development and its location;
    - Safe and suitable access can be achieved for all users;
    - Design of streets, parking areas and other transport elements reflect current national guidance including the National Design Guide and the National Model Design Code;
    - Significant impacts from the development on the transport network (in terms of capacity or congestion) or on highway safety, are cost effectively mitigated to an acceptable degree through a vision-led approach.

*(NPPF 2024, Paragraph 115)*

- Applications for development should:
    - give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;
    - address the needs of people with disabilities and reduced mobility in relation to all modes of transport;
    - create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;
    - allow for the efficient delivery of goods, and access by service and emergency vehicles; and

    - be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.

*(NPPF 2024, Paragraph 117)*

- Protect and enhance public rights of way and access *(NPPF 2024, Paragraph 105)*
- Seek to:
    - Have 'street layouts that allow for easy pedestrian and cycle connections within and between neighbourhoods, and active street frontages';
    - Design development to be 'safe and accessible, so that crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion – for example through the use of well-designed, clear and legible pedestrian and cycle routes';
    - 'Enable and support healthy lives… through provision of safe and accessible green infrastructure, sports facilities, local shops, access to healthier food, allotments and layouts that encourage walking and cycling'.

*(NPPF 2024, Paragraph 96)*

18. **Vision-led transport proposals should be able to demonstrate they have considered wider infrastructure constraints, in addition to local infrastructure provision.** A vision-led approach must consider all movement related to the site. Plans must adequately consider how sustainable travel will be embedded into development and long-term behaviour.

19. Visions should be ambitious, but evidence-based, and realistic, reflecting that:

- Connectivity to the wider environment, local infrastructure provision, and network operation are directly related to transport choice;
- Some vehicle movement is necessary, and development is not entirely vehicle free;
- People may have mobility impairment;
- Parents have children who may require prams;
- Where providing walking routes, the elderly may move more slowly and need more places to rest;
- Removing parking can lead to on-street parking proliferation, to the detriment of pedestrians, and does not always encourage sustainable travel behaviours;
- Parking can also restrict vehicular and pedestrian movement;
- Parking provision should be sufficiently sized to accommodate the intended vehicle, have access to electric charging suitably located (where applicable), be appropriate, proportionate, and aligned with site context, demand management, and the promotion of sustainable travel behaviours;

- Sites need to be serviced, maintained, and accessible for deliveries and the emergency services.

20. Proposals which are unrealistic and fail to consider the local/wider context of movement and the limitations of sustainable travel uptake will be challenged and likely be rejected. Proposals which fail to meet the requirements of the NPPF will not be supported.

## Masterplanning

21. Land uses vary widely, with residential, commercial, industrial, and mixed-use developments each having unique characteristics. Careful planning is needed to ensure that sites complement each other and connect well to the surrounding area and network. With larger sites, masterplanning should be used and should have regard for:

Land uses;

- Movement patterns for all modes (i.e. footpaths, cycle paths, equestrians where applicable, vehicles, servicing, delivery);
- Broad design standards (i.e. widths, functions, turning heads, grade separation, etc);
- Development phasing, accessibility and local/wider connectivity for each phase for all modes (including public transport and service capacity);
- Constraints and opportunities;
- Extent of highway maintainable at public expense, third party land, public rights of way;
- Public transport locations, proposed public transport routing in relation to phases, its availability day, evening weekend as well as available service capacity and funding/subsidies;
- Consideration of self-containment and trip internalisation (where possible);
- The need for good design, including appropriate location of parking facilities for vehicles and cycles, with sufficient quality and size to accommodate the intended vehicle. Electric vehicle charging should be located such as it can be easily accessed from parking spaces and does not impact on pedestrian movement. Disabled parking should be suitably located to facilitate easy access.
- Community input and consultation;

In the absence of a masterplan, sites may come forward in a piecemeal fashion, exceeding intended land use and creating disjointed inefficient space with adverse

outcomes. This may warrant an objection from the Local Highway Authority on highways grounds.

### Developments of Significance

22. Developments of significance, such as garden villages, often operate as satellites to urban areas, providing self-contained communities that support the larger urban centres. These developments need to be carefully planned to ensure they integrate well with existing infrastructure and services and the LHA should be involved early on. Where LHA engagement is not sought this can adversely affect proposals and their sustainability.

23. Where multiple developers masterplan together to create a unified area of development, each site must be planned to function independently as well as integrating with future sites. A clear, coordinated strategy should demonstrate how they will collectively meet all requirements, align with broader planning objectives, and be delivered in a timely manner with appropriate phasing.

## Stage 1(b): Stakeholder Engagement

24. To ensure the guiding principles are effectively implemented, and the vision can be achieved, there are multiple stakeholders who must be involved in the development at different stages of its lifetime. The LHA will request details of whether appropriate bodies have been consulted and support proposals, particularly where they hold responsibility for one of the implemented measures. These may include:

- Transport Operators;
- Local Councils and Authorities (including neighbouring where applicable);
- National Highways;
- Active Travel England;
- Network Rail;
- Canal and Rivers Trust;
- Public Rights of Way;
- Local Organisations and Communities.

25. Developers should seek to work with others to:

- Create clear plans addressing all transport modes;
- Ensure that scenario testing meets the needs of the relevant authorities;
- Ensure suitable transport implementation in development;
- Align visions, strategies, schemes, and reflect masterplans;

- Monitor/evaluate transport usage and performance, and adjust strategies as necessary;
- Understand local needs and preferences, and secure community support.

# Stage 2: Assessment

## Stage 2(a): Baseline assessment and assessing accessibility

26. Accessibility and current network conditions in the area of influence are the starting point for assessment.

**The area of influence is development specific and should be agreed with the LHA at the outset.** If the area of influence is not agreed, the LHA may not be able to conclude the developments impacts and therefore not support the proposal based on the evidence submitted. All proposals must accord with the NPPF and be in line with the requirements of Paragraph 118 regarding likely impact.

## Traffic Data Collection

27. Traffic data for the baseline scenario should include surveys for all modes setting out volumes, classification, queues etc. Data collection should cover all modes of transport throughout the day and be conducted only during neutral months. The recommended neutral periods are April, May, June, September, and October outside of school holidays.

Traffic data collection should not be undertaken when there are anomalies or unusual activities, for example when there are road works or in periods of extreme weather, as this can result in unreliable and unrepresentative data.

In locations such as on the Fylde coast, it may be necessary to consider other local factors, such as seasonality and large-scale events. This to be agreed with the LHA on a case-by-case basis and is dependent on that proposed, scale, its likely impacts and its location.

The LHA can be contacted in advance to discuss whether proposed surveys are suitable and to establish if road works will affect surveys, at developeras@lancashire.gov.uk.

28. When collecting traffic data, it is important to consider all sources, such as traffic and transport surveys, census data, and local authority reports, to best ensure an

accurate baseline and identify network opportunities. Journey time data may be requested by the LHA. Other influences on traffic data and movement include:

- **Nearby Construction Projects:** Ongoing or planned construction can significantly alter traffic patterns due to road closures, detours, or increased construction vehicle traffic;
- **Changes in Land Use:** New developments such as shopping centres, residential areas, or industrial parks can increase traffic volume and alter traffic flow;
- **Public Transport Changes**: Introduction or modification of bus routes, train schedules, or other public transport services can impact traffic patterns;
- **Road Network Changes**: New roads, changes in road hierarchy, or modifications to traffic signals and signage can influence traffic flow;
- **Special or Annual Events**: Events like concerts, sports games, shows or festivals can cause temporary spikes in traffic (for a short period of time or many days/weeks);
- **Access to Education:** Proximity to schools, and bus routes/ services related to education, can affect traffic during drop-off and pick-up times;
- **Seasonal Variations:** Tourist seasons or agricultural cycles can lead to fluctuations in traffic;
- **Weather Conditions:** Extreme weather events like heavy rain, snow, or fog can affect traffic volumes and speeds;
- **Economic Factors:** Changes in local employment rates or economic activities can influence commuting patterns and traffic volumes, and;
- **Baseline Scenario Considerations**

## Baseline Scenario Considerations

29. Baseline Scenarios must be validated and agreed with the LHA. The LHA expects baseline scenarios to include/consider:

- Surveys for all relevant junctions and links across all modes of transport. This includes traffic counts, travel surveys, and queue length data, as agreed with LHA;
- Journey times (all modes) on agreed corridors and links;
- Speeds;
- Historical data (such as Census, Travel to Work, etc);
- Public transport usage, pedestrian and cycling activity;
- Existing infrastructure and its quality;
- Proximity to key local amenities and routes (including journey time/speed data);
- The demographics of the people using, residing in, and travelling to/from the development, with how the transport network is utilised by this demographic;
- Permitted, committed, and planned development;

- Known and pre-existing trends on the highway network;
- Recent trip end data. When using older data, it is important to account for any changes that may have occurred on the highway network since the data was collected, such as new roads, changes in road layout, changes in traffic patterns, or new developments;
- Realistic assumptions; and
- Data which has a clear and identifiable link to occupiers/users of the site.

*Note: The above list is not fully inclusive and should be considered as a general guideline. Additional factors and data may be relevant depending on the specific circumstances and requirements of each development. It is crucial to consider the unique circumstances of any particular location to ensure that all relevant factors are appropriately addressed.*

*Undertaking site visits and on-site observations enable a first-hand understanding of existing conditions, user behaviours, and operational characteristics of the local transport network. Site visits can reveal factors not always apparent in datasets—such as informal crossing behaviour, peak-hour congestion pinch points, parking stress, and the quality and usability of walking and cycling routes—and help to validate or supplement data sources. It is expected that development proposals are informed by site visits.*

30. Validation of the base model must be discussed and agreed with the LHA. Observed junction performance and model performance should be consistent (for example, through queue length). If validation is not agreed, the assessment may not meet the requirements of the NPPF under Paragraph 118 (likely impacts).

## Known and Pre-Existing Trends

31. Developers should consider up-to-date and current information, taking into account known elements of the highway network that influence traffic patterns. Trends can relate to congestion, speeding, accident hotspots, bottlenecks, pedestrian activity, parking demand, and public transport usage, etc. Key elements of the highway network that can influence traffic patterns include:

- HGV Routing and Swept Paths;
- Pedestrian Crossings (formal/informal);
- Parking-Related Issues/Trends;
- Lack of Right Turn Provisions;
- School Zones;
- Retail / Leisure Areas;
- Industrial Areas;

- Public Transport Hubs;
- Bus Stops;
- Carriageway Narrowing;
- Residential Developments;
- Traffic Calming Measures;
- Traffic Signal Timings; and
- Cycling Infrastructure (on/off carriageway).

*Note: The above list is not exhaustive, as trends are site and location specific. Consideration should be given to the area's highway infrastructure and any elements that may influence travel patterns.*

A clear understanding of corridor constraints is crucial, and known constraints must be identified, and resolved where necessary to support development proposals.

## Demographics, Modal Split, and Distances

32. The following will vary depending on the development proposal and location and should be specific to the proposal:

- Car ownership levels;
- Journey-to-work information (by mode);
- Distance travelled;
- Distances to amenities with site-based minimums and maximums;
- Modal split.

*Note: Distances should not be calculated 'as the crow flies'. If a detailed layout is not yet available, an indicative plan needs to be agreed upon, and distances should be based on that.*

## Trip Rates

33. Trip rates must be agreed with the LHA. TRICS should be used to assess trip rates, with supplementary evidence if required. The LHA may consider locally collected data (i.e. counts, queue observations, travel surveys, etc). Daily variations, site specific context and/or changes which may influence evidence should be accounted for.

34. Adjusted trip rates for future scenarios must be evidence-based and reflect the vision for the site with agreed infrastructure/mitigation. Sustainable transport modes

should be prioritised taking account of the vision for the site, the type of development and its location in line with NPPF Paragraph 115.

*Note: Achieving lower future trip rates than those typically set out in TRICS requires integrating sustainable travel well to and within the site. All modes and journey purposes should be considered when embedding sustainability into a site, and the wider infrastructure beyond the site will influence the level of sustainable travel possible.*

## Acceptable Evidence

35. The 2011 Census remains relevant, due to COVID-19 influence on the 2021 Census. The National Travel Survey (NTS) may be used to forecast multi-modal trip rates where it aligns with the Census and can be justified that it is directly relatable to the specific characteristics of the proposed development. This is acknowledged by the NTS in its Quality Report (DfT, 2020a, p.3), stating:

*"The NTS is not designed to produce robust data below regional level. Whilst it is possible to analyse data for smaller geographies than regions, for example local authorities, often many years of data need to be combined to obtain a suitable sample size. Even then this is not ideal as weightings are applied to the sample to be representative of England. This is likely to skew analyses as demographics at sub-national level can vary significantly from the national level."*

With this all evidence should be appropriately justified, and its acceptability agreed with the LHA.

## Assessing Accessibility

36. Decide & Provide requires a vision-led approach to identify transport solutions that deliver well-designed, sustainable and popular places. In developing a vision, applicants need to carefully assess the local network and accessibility characteristics of the site. It is expected distance, infrastructure provision and collisions on routes for all modes are assessed, in relation to:

- Activity
    - Education – primary, secondary, college, university;
    - Healthcare – hospitals, GP surgeries, dentist;
    - Retail – supermarkets, local food store, other retail;
    - Employment – employment areas;
    - Leisure Purposes – gyms, swimming centres, multi-use gaming areas (MUGA) etc;

    - all other relevant purposes;
- Public Transport – train stations, bus stations, bus stops, sustainable transport hubs.

37. Deficiencies in accessibility including constraints, should be identified, taken account of, and addressed where necessary *[see also: scenario testing, promoting accessibility].*

38. Constraints may include topography, speed limits, road hierarchy, private or stopped-up streets or areas, flood risk, ecology, highway characteristics (i.e. retaining walls, bridges, narrow highway, limited visibility/intervisibility, historic) and the infrastructure/land beyond the control of the LHA. Infrastructure that severs connectivity, such as network rail lines, high-speed roads, canals, and rivers should be carefully considered. These factors can significantly impact layout design, connectivity, permeability, and the implementation of transport solutions.

39. If constraints are not identified or fully appreciated, the LHA will raise these concerns with the applicant.

## Stage 2(b): Scenario Testing

40. Once a base is established and agreed, scenario testing is required. **The level of sustainable travel in a future scenario is directly related to the site characteristics and the proposal (including improvements where necessary).** While vehicular trip rates are initially established during the baseline assessment [see: trip rates] to help inform assessment scope, their role is equally critical in scenario testing. Adjusted trip rates should be evidence-based, context-sensitive, and aligned with agreed infrastructure and mitigation proposals. Scenarios which assume significant mode shift or car reduction must demonstrate how these are achieved, ideally using locally validated data or comparable case studies where applicable.

41. The Decide and Provide approach shifts the focus to actively plan for preferred transportation outcomes. Modelling should incorporate a variety of scenarios for all modes of transport throughout a typical day. Transport Assessments should not solely rely on strategic models or Local Plan Transport Assessments unless explicitly agreed with the LHA.

*Note: Local plan analysis uses area wide generic data. For individual developments, site-specific information must be used.*

## Traffic Growth

42: Future scenarios should account for account for future traffic growth, using TEMPro. Furthermore:

- Variations of growth (i.e. low growth and high growth) need to be evidence-based and agreed;
- Historic traffic growth factored forward is not acceptable;
- Committed development should be considered. Alternative assumptions to minimise double counting should be utilised, with the assumptions agreed with the LHA;
- Different scenarios may be required to account for permitted, committed, and planned development in addition to general growth.

## Distribution

43. Traffic distribution methodologies must be clearly set out and justified. Distribution should be based on up-to-date evidence, such as journey-to-work data (e.g., Census), observed traffic patterns, or origin-destination studies. Where possible, distribution should reflect existing movement patterns on the network and consider local trip attractors and generators. Any assumptions used to determine distribution percentages must be agreed with the Local Highway Authority.

## Modelling Software

44. The choice of proprietary software for transport modelling depends on the scale and complexity of the development and the network. The LHA may request micro-simulation or network models in more sensitive areas of the network. The software proposed for each part of the study area should be agreed with the LHA.

## Scenarios

45. Applicants should consider the scenarios listed in the table below.

| Scenario | Explanation |
|---|---|
| **Base Scenario** | The base scenario should reflect guidance under baseline assessment. |
| **Do-Minimum** | 'Do-minimum' scenario is a future scenario that represents existing transport conditions without significant changes, including existing traffic volumes and patterns, public transport usage, and infrastructure. |

| | |
|---|---|
| | Developers should use reasonable and agreed assumptions about future conditions, such as traffic growth (TEMPro) and committed development and infrastructure. Developers should engage with relevant authorities and stakeholders to ensure assumptions and data are agreed upon and realistic.<br><br>The 'do-minimum' scenario serves as a starting point for testing other future scenarios, such as those with high sustainable travel uptake, helping to understand the potential impacts of different development options and plan appropriate mitigation measures. |
| **Connectivity Improvements** | Developers should conduct multiple scenario tests to assess the impact of various connectivity improvements, if required to support the proposal. If the do-minimum scenario indicates increased traffic this must be mitigated to an acceptable degree, through the promotion of sustainable and active travel, and capacity improvements for vehicles if necessary, to ensure the LHA can meet its' statutory duties. *[see also: promoting accessibility]*<br><br>Other things to consider include:<br>• Once proposed connectivity improvements are identified, additional scenario testing should be conducted based on these enhancements. This testing should utilise data from comparable sites that closely match the connectivity characteristics of the proposed development, as agreed upon with the LHA;<br>• It may be necessary to include multiple scenarios that reflect varying levels of intervention;<br>• Connectivity improvements should consider all modes of transportation; and<br>• Proposals should ensure that the road hierarchy is maintained throughout the approach. |
| **Extrapolated Trends and Variables** | Developers may include 'Extrapolated Trends and Variables' scenario testing to account for future uncertainties and changes in travel behaviour. This may include:<br>• **Utilising Historical Data:** Identifying trends in travel behaviour, traffic volumes, and transport network performance to understand past patterns and project future scenarios;<br>• **Extrapolating Current Trends:** Predicting future conditions by analysing factors such as population growth, economic development, technological advancements, and changes in travel preferences; |

| | |
|---|---|
| | • **Developing Multiple Scenarios:** Reflecting different assumptions about future conditions, including varying levels of population and economic growth, the impact of emerging technologies (e.g., autonomous vehicles, increased telecommuting), and different policy measures (e.g., congestion pricing, enhanced public transport services);<br>• **Conducting Additional Analysis:** Understanding how changes in key variables affect transport outcomes and identify critical factors influencing future transport demand;<br>• **Analysing Impacts:** Assessing the potential impacts of each scenario on the transport network, including congestion, travel times, and accessibility, while considering environmental and social impacts;<br>• **Proposing Mitigation Strategies:** Addressing any negative impacts identified in the scenario testing through further infrastructure improvements, policy changes, or demand management measures;<br>• **Ongoing Monitoring and Review:** Developing a plan with clear metrics and a timeline for regular updates to monitor transport impacts and the effectiveness of mitigation measures.<br><br>Other things to consider include:<br>• Scenario testing should account for the influence of infrastructure projects on travel patterns or local plan delivery, especially when these factors are expected to have a substantial effect on the proposal;<br>• When scenarios indicate junctions over capacity, subsequent work should consider the safety implications;<br>• Site details may include phasing, and projects with long build-out periods will require scenario testing for multiple phases;<br>• Low traffic scenarios are influenced by parking availability. Therefore, parking availability should be a key consideration when modelling these scenarios;<br>• In cases of uncertainty, a separate scenario should be created;<br>• How the scenario aligns with Policy both local and national for both the short and long term; and<br>• Scenario enforcement/adherence. |
| *46. Where assumptions are made, they should be clearly outlined, including their specific applications. This can be achieved through an assumptions log, which should detail individual scenarios, their corresponding assumptions, and the broader assumptions that* | |

*influence all the scenarios being tested. All scenarios to be tested must be agreed in advance with the Local Highway Authority (LHA). Early agreement supports transparency and avoids delays in the assessment process.*

47. When assessing scenarios, developers should have regard for the following:

- A one-size-fits-all approach will not work when developing scenarios whilst having regard to their deliverability and sustainability. Scenarios will be subject to several external factors *[see: positive and negative external factors]* which must be considered by each individual development proposal;
- Vulnerable Road Users and those with other differences in ability. In low traffic scenarios, scenario testing must not assume that everyone has the same level of ability or confidence in sustainable travel. This includes ensuring that people with mobility issues, who may be car-dependent, have suitable access. Additionally, personal safety concerns, such as those experienced at night, should be considered, and mitigated;
- The scope and extent of scenario testing is dependent on the scale, sensitivity, and complexity of the site;
- The benefits of any proposed improvements should be supported by appropriate evidence and detailed explanatory text;
- Where congestion is known, the LHA may require an assessment with a nominal number of additional vehicles to account for constrained demand, or for other reasons;

*Note: Increased pedestrian, cycling, or public transport activity may also warrant analysis, as these can create delays. The LHA should be contacted for advice in such cases.*

- Testing for various uncertain outcomes during scenario testing. By testing these uncertain outcomes, developers can create more robust and adaptable Transport Assessments that better accommodate future uncertainties and various plausible outcomes, as advocated in Section 7 of the TRICS Good Practice Guidance 2021. This includes:

    - **Non-delivery of Improvement Works:** Evaluate the potential impacts on travel and infrastructure within the area due to the non-delivery of planned S278 works, S106 works, and other broader schemes;
    - **Changes in Travel Behaviour:** Assess how shifts in travel preferences, such as increased cycling or remote working, might impact transport demand;

- **Population Growth and Demographics:** Analyse how changes in population size, age distribution, and urbanisation trends might affect transport requirements;
- **Environmental Policies:** Test scenarios based on different levels of environmental regulation and their impact on transport modes and emissions;
- **Technological Advancements:** Consider the potential effects of emerging technologies like autonomous vehicles and electric scooters on traffic patterns and infrastructure needs;
- **Economic Variability:** Evaluate how economic fluctuations (i.e. low growth and high growth) could influence transport usage and development viability;

- When testing and evaluating potential scenarios, developers must consider various external factors that can influence outcomes. These factors can be both **positive** and **negative** and include those detailed in the table below:

| Positive External Factors | Negative External Factors |
|---|---|
| • Layout;<br>• User-friendly topography;<br>• Direct vehicle routing;<br>• Direct pedestrian and cycle provision;<br>• Road users feeling safe and secure;<br>• Satisfying the needs of mobility impaired users;<br>• Direct design lines;<br>• A well-designed environment;<br>• Dedicated cycle infrastructure;<br>• Wide cycleways and footways;<br>• Red routing (TRO required);<br>• Increased timings on pedestrian crossings or intelligent traffic management (VivaCity or similar);<br>• Formalised crossings;<br>• Informal crossings,<br>• Sustainable transport hubs linking into the existing highway network;<br>• Dedicated bus services;<br>• Improved bus routes; | • Removal and adverse changes to public transport services (i.e., route, frequency, service, purpose, etc);<br>• Poor topography (i.e. steep gradients)<br>• Convoluted internal network;<br>• Impacts of other development (may include changes to behaviour);<br>• Implementation of new restrictions (i.e., diversions, closed roads, one-way traffic, etc),<br>• Influences of planning, and the impact this has on the network capacity and its operation (e.g., parking displacement or inadequate parking);<br>• Bus stops in bus locations without laybys;<br>• Other external factors influencing the use and sustained availability of sustainable modes, whether positively or negatively; |

| | |
|---|---|
| • Increased bus frequency;<br>• High frequency bus services;<br>• High speed bus services;<br>• High quality bus shelters (Equality Act compliant);<br>• Incentives for long term public transport use;<br>• Access to public transport information and real time bus information;<br>• Access to pool cars, electric cars, and electric bikes with no contract;<br>• Conveniently located secure cycle storage (with CCTV and power to charge electric bikes);<br>• Tailored traffic signals;<br>• Satisfying national policy in the short term. | • Not satisfying policy or uncertainty in satisfying policy in the long term. |
| **While not all of the above will have tangible impacts on network operations, they will still influence site sustainability.** | |

48. While developers should consider plausible yet uncertain outcomes and include potential factors in their scenario testing, it is crucial that they do not rely solely on these factors. The circumstances and characteristics mentioned above may not be permanent, and therefore, analysis derived from scenario testing should not heavily depend on this information. For example, if sustainability analysis derived from scenario testing heavily relies on a bus service subsidised by the LHA, and that bus service is later cancelled, the scenario testing will be redundant. Consequently, the development's aims may not be achieved.

For further discussion of how uncertainty should inform the choice of core and alternative scenarios, see Paragraphs 1.3 and 3.50 of the DfT's Uncertainty Toolkit (2021b) and Sections 3 to 5 of the DfT's TAG Unit M4: Forecasting and Uncertainty (2019).

## Sensitivity Testing

49. The LHA does not support sensitivity testing in Transport Assessments. Sensitivity testing can lead to misleading conclusions, introducing variables that are not representative of actual conditions and complicating the planning process.

Applicants should consider alternatives through scenarios clearly setting out the differences. Reasonable future scenarios should be used in line with the NPPF.

## Promoting Accessibility

50. Developers should seek to enhance and promote accessibility for all modes throughout the day when scenario testing for connectivity improvements. Using guidance, such as Manual for Streets, Design Codes (including National Model Design Code Guidance), Inclusive Mobility, LTN 1/20 and Healthy Streets can improve the prospects of sustainable travel uptake and promote accessibility. Healthy Streets (HealthyStreets.com) can be applied to any street impacted by a proposal to understand the characteristic of the road in order to make sustainable travel more attractive.

## Integrating Multiple Modes of Transport

51. Some journeys may be multi-modal (two or more modes of transport in one trip). Proposals should consider where destinations could have enhanced provision to support movement from the site (for example, student accommodation proposals could explore improving cycle parking at transport interchanges to enhance movement). This may adjust travel behaviour in future scenarios and should be discussed with the LHA.

*Note: These types of initiatives require coordination from the LHA, other stakeholders such as the LPA, and potentially third-party landowners.*

## Infrastructure and Amenities

52. Planned development should seek to align with and connect to existing infrastructure and new schemes. The LHA can advise on schemes taking place. Applicants should explore:

- **Cycling:** Dedicated bike lanes, secure bike parking, and electric bike charging.
- **Walking:** Safe, well-maintained and well-lit pedestrian pathways, with places to rest.
- **Public Transport:** Enhancing bus and/or rail services with frequent schedules, comfortable upgraded waiting areas, dedicated drop/off pick up or cycle storage/cycle availability, easy access to PT infrastructure/amenity including that for mobility impaired, improvements to user safety and its perception and real-time information.

Proposals must be funded, and management plans set out, if not in public ownership.

## Sustainable Hubs

53. Sustainable hubs within developments can promote active travel, serving as central points where various modes of transport converge, offering facilities such as bike-sharing stations, electric vehicle charging points, and connections to a variety of public transport. By making it easy to access different modes of transport, these hubs can enhance the overall efficiency and appeal of sustainable travel options. Developers should consider the management, funding and lifetime of the hubs as part of development proposals and discuss proposals for sustainable travel hubs with the LHA.

## Discounting Consequences of Implemented Measures

54. When conducting scenario testing, developers must consider the consequences of measures implemented due to a development. In this context, discounting refers to evaluating both the positive and negative impacts of proposed transport measures to mitigate the development's effects.

For example, implementing a mobility hub can reduce car dependency by integrating various modes of transport, such as buses, bike-sharing, and electric vehicle charging, making it easier for residents to choose more sustainable options. However, its positive impact is variable and can be influenced by the weather/seasons, influencing Transport Assessment. In this respect there should be an average agreed (i.e. taking all into account rather than in the height of summer, when individuals are more likely to travel sustainably). Similarly, while constructing a pedestrian crossing may enhance accessibility by foot, it could lead to delays and bottlenecks as traffic frequently stops at the crossing.

55. When proposing measures to mitigate the impact of a development, adverse impacts of beneficial infrastructure must be adequately considered, and reflected in scenario tests.

## Assumptions for Permitted, Committed, and Planned Growth

56. Transport Assessments should evaluate the impact of traffic generated by permitted, committed, and planned growth on the highway network affected by the proposed development. A scoping exercise must be undertaken to identify, and these should be analysed alongside TEMPro, using alternative assumptions where necessary. If assumptions are made which suggest there will be a reduction in

private car use more broadly, supporting evidence should be provided and presented as an alternative scenario (Extrapolated Trends and Variables).
*Note: It is not reasonable to apply an approach when scenario testing other committed development, as this is outside of the control of the applicant.*

57. When analysing potential growth in various scenarios, developers should avoid relying on past trends to predict future growth.

## Accounting for COVID-19

58. The long-term impacts of COVID-19 on travel and working patterns remain uncertain, and assumptions about remote working are industry-specific. Lancashire hosts several major employers with limited remote working opportunities, including sectors such as defence, manufacturing, energy production, construction, and retail. Any COVID-19 assumptions must be supported by a robust evidence base and should be presented as a separate scenario for testing alongside scenarios which excludes these assumptions.

For example, data collected during and post COVID-19 showed:

- Lower traffic levels during COVID-19, which have since returned to more typical levels during peak periods;
- Post COVID-19, off-peak traffic within the built environment has generally increased;
- Bus usage has declined and has not yet reached pre-COVID levels;
- Cycle usage varies significantly by location, topography, and season, with little evidence to suggest a consistent increase or decline; and
- Some people continued to work from home several days a week in sectors where remote work is feasible but may have since returned to the office either part or full-time.

## Use of Car Reduction Targets

59. Local Authorities, including Lancashire County Council, implement various plans and strategies to reduce private car trips and reliance on single occupancy vehicle use. Aligning car reduction targets with strategies—such as the Local Cycling and Walking Infrastructure Plans (LCWIPs) Local Transport Plans, Air Quality Management Plans, Car Parking Strategies, and Local Plans can support proposals.

60. Car reduction targets, where these are used, should be integrated into Transport Assessments in a structured and evidence-based manner. The following is expected:

- Set clear, realistic, objectives (having regard to seasonal variation in weather conditions);
- Evidence-based targets;
- Scenario testing of possible outcomes;
- Integrated strategies with public and private bodies
- Set out monitoring and evaluation:
    - Progress towards car reduction targets should be clearly outlined and regularly monitored through agreed Travel Plans. Traffic surveys should be undertaken, and adjustments to ensure targets can be met must be agreed. Plans must include triggers for when car reduction targets should be met, based on the agreed works, schemes, and measures designed to achieve them.
    - Targets will be enforced through condition and legal agreement if necessary;
- **Funding and Permissions:** Secure necessary funding and permissions for implementing strategies aimed at reducing car usage. Without these, it is challenging to achieve the desired outcomes; and
- **Flexibility and Adaptability**: Be prepared to adapt strategies based on new data, changing circumstances, and feedback from stakeholders.

61. Assuming the delivery of strategic improvements to meet car reduction goals without confirmed funding or permissions is inappropriate. Transport Assessments should be based on evidence and achievable goals rather than local authority aims or national objectives.

## Stage 2(c): Validation and Testing

62. Model validation is required to ensure that models are accurate and the proposed transport solutions are effective. Models must be validated.

Note: The validation process requires transparency, including the methods used and all steps to obtain results. This transparency helps build confidence in the proposed solutions. Approaches which are not transparent are unlikely to be supported by the LHA and may warrant an objection to the proposal.

63. Developers should engage the LHA to validate models, agree assumptions and gather feedback on the practicality and acceptability of the solutions. The involvement of National Highways, and other stakeholders, may be necessary.

64. Outputs must be compared against the baseline. The outputs benefit from comparison with local and national key performance indicators (KPIs) and

benchmarks to ensure alignment with broader transport, sustainability goals (for example, comparison with North West and national travel habits).

## Stage 3: Implementation Plan

65. To achieve the vision, how the development is implemented will need to be set out clearly. It is expected that proposals are supported by:

- Construction Traffic Management Plan;
- Phasing Plan;
- Infrastructure Delivery Plan;
- Travel Plan with aspirational yet achievable targets supported with secure and sustained funding to deliver additional measures bespoke to the site;
    - Monitoring travel plan targets is essential to ensure transport initiatives are effective and sustainable. Regular checks, such as staff travel surveys and vehicle counts, help identify issues early. If targets aren't met, revised or additional measures should be implemented to address shortcomings and adapt to changes. This process ensures continuous improvement and maintains support for the travel plan.
- Draft Legal Agreements (as appropriate).

66. **All highways works require approval from the LHA.** Some proposals will require Traffic Regulation Orders or Public Right of Way diversion, which can be protracted processes and should be started as soon as possible. Legal agreements will be required for S278 off-site highways works, and S38 agreements to make highway infrastructure maintainable at public expense. All highway infrastructure, where possible, is delivered through S278 of the Highways Act 1980.

67. The LHA may seek S106 contributions to mitigate impact where this cannot be delivered under S278 and is not covered by CIL. This is discussed during pre-application and during the planning process.

68. The LHA is likely to intervene if works and/or development results in a threat to public safety.

69. The LHA can be contacted regarding implementation of development, and has dedicated teams for a number of different functions:

Contact developeras@lancashire.gov.uk for general enquiries.
Contact S278Applications@lancashire.gov.uk for off-site highways works.
Contact S106@lancashire.gov.uk for Highways S106 matters.
Contact travelplans@lancashire.gov.uk for Travel Plans.
Contact PROW@lancashire.gov.uk for PROW diversions.

## Stage 4: Monitoring and Review

70. Site delivery is a complex process. The LHA will support delivery, monitoring and reviewing throughout the process. Developers are expected to set out how they plan to meet the sustainable travel commitments set out at planning in a Travel Plan. Travel Plan requirements will be set out in statutory comments and relate to the development proposal. Travel Plans are subject to Planning Condition, and in some cases, legal agreement. Discharge will not be supported if the travel plan objectives are unlikely to be achieved.

71. Monitoring of development helps the LHA to understand changing travel behaviour and will inform assumptions and scenario testing in future proposals where appropriate. If targets are not being achieved, the LHA may seek to use planning mechanisms to provide a review period before further development can occur. Developments that do not follow the necessary guidance and do not support the delivery of sustainable development will not have the support of the LHA to progress to further phases until all concerns are addressed and mitigated accordingly.

72. When monitoring site delivery and its associated outcomes, the following should be considered:

- The timing of mitigation measures, such as bus service provision, and their alignment with phasing strategies is crucial for delivering sustainable development;
- Contributions towards improvements and mitigation measures, via S278 and S106 agreements, should be delivered or paid in a timely manner. This should adhere to the schedules outlined in the agreements and be agreed upon with the LHA; and
- Ongoing data collection can support the monitoring of sustainability goals and Travel Plans. Over time, this will help facilitate more accurate assumptions about modal shifts during scenario testing for other similar sites. Developers should actively engage with this process, as it can significantly benefit the delivery of future sustainable development sites.

## Part 3: Example

73. This guidance has been produced to support sustainable development in Lancashire. If you are a Transport Consultant or Developer, Part 3 of this guidance provides an example of how a Transport Assessment may be undertaken.

# Practical Example

***This section of the document provides a practical example of implementing the Decide and Provide approach in Transport Assessments.***

> *Note: This example is non-scheme specific, incorporating elements from historical planning applications that have effectively utilised the Decide and Provide approach in their Transport Assessments. While influenced by real cases, specific details have been altered.*

Following this example **does not** guarantee support from the Local Highway Authority or pre-determine the outcome of any Planning decision. The approach is not prescriptive; each assessment methodology should be tailored to the development proposal. All matters, including assessment, must be concluded to the satisfaction of the Local Highway Authority.

**Comprehensive**

A comprehensive approach is recommended for sites where the highway impacts may be of considerable concern or impact on a sensitive/constrained network. Strategies need to consider all modes of transport in detail and supporting infrastructure will be of significant interest when determining of Planning Applications.

***Example of Comprehensive Analysis:*** *Analysis may require multiple models which may include micro-simulation. Trip rates may be tied to strategy, and phasing plans for site may be required, warranting scenario testing of multiple phases of development. Assessment may utilise gravity models or other approaches untypical of smaller development.*

**Simplified**

This approach is acceptable for smaller or less significant developments where the proposed project is not expected to have a substantial impact on the highway network. This alternative approach involves more simplified analysis of the baseline, scenario testing, and result analysis.

***Example of Simplified Analysis:*** *Use of a comprehensive Excel worksheet type approach, with network diagrams within etc.*

The following example is for 1000 dwellings with associated infrastructure provision.

> *Note: There are other approaches that could be used in line with Decide and Provide. These will require agreement from LCC's Highways Development Control team.*

# Stage 1(a): Establishing the Vision

***Objective:*** *Define a clear vision for the development that aligns with broader sustainability and community goals.*

***Decide*** *what the vision is. This should be a clear, achievable statement that sets out the end goal. It should be measurable through effective monitoring.*

## Background

The assessment is prepared for a residential-led mixed-use development. The Local Plan allocates the site and associated infrastructure. The proposal includes:

- 1,000 dwellings (a portion will be affordable housing);
- A local centre featuring retail, employment, and community uses;
- Green spaces, and a mobility hub; and
- Retention and enhancement of active travel routes.
- Public Rights of Way (PROW) and transport links will be improved to encourage active and shared travel.

## Masterplan Principles and Vision

Decide and Provide approach is used, aiming to **reduce unnecessary car trips** by:

- **Encouraging active travel** (walking, cycling) by creating direct, overlooked footpath and cycle links, with places for resting so that people of all ages and abilities can utilise active travel networks.

- **Ensuring development site permeability by Public Transport** and limiting the scope for on-street parking proliferation.

Development is proposed close to local amenities, will incorporate a local centre within the site, to **internalise** some trips.

Location is such that is has **suitable access to wider area**, utilising routes with **sufficient highway capacity** to support the necessary vehicle movements**.**

**The development will also meet the needs for people throughout their life and will not detrimentally impact people with disabilities** or other needs (i.e. visual impairment, mobility impairment, safe and secure with limited scope for conflict).

The developer decides the vision for the site is:

*"An attractive and sustainable place, where all people can work, live and play, people primarily use sustainable travel for short trips, and services are accessible within or near to the site."*

The developer intends to commit to:

- Surveying destinations and trip mode, to measure how short trips are being taken.
- Monitoring trips to and from the site, using technology to understand overall traffic levels.
- Measuring public transport use and working to ensure it remains available in the long-term.
- Development of a mobility hub to support active travel.
- Making sure that safe, lit, and overlooked routes are throughout the site.

## National Planning Policy and Guidance

The proposal will align with national and local policy and design guidance, including the Local Plan, the NPPF, MfS 1 and 2, LTN 1/20, National Design Guide and National Model Design Code Guidance, Inclusive Mobility, DfT Travel Plan and Transport Assessment Guidance, National Highways guidance, and DMRB.

# Stage 1(b): Stakeholder Engagement

***Objective:*** *Engage with key stakeholders, including local authorities, community groups, and transport experts, to gather input and build consensus.*

The applicant/ developer/ transport consultants should engage with various stakeholders, including local authorities, transport providers, and the community, to gather input and ensure the vision is comprehensive and inclusive. This step is crucial for understanding local needs and gaining support for the proposed transport solutions.

## Pre-Application Discussions and Consultation

- Lancashire County Council (LCC) Highways and National Highways (NH) are consulted to:
  - Seek professional advice from the highway authorities;
  - Ensure alignment with highway strategies and understand concerns on the network;
  - **Seek agreement on the full scope (including junctions to be modelled and areas of concern), methodology, assumptions, parameters, modelling software, etc.**

- LCC acknowledge the site could be sustainable with suitable infrastructure, and emphasised the need for a clear, deliverable, and phased masterplan. This approach ensures that all necessary infrastructure is delivered when needed, rather than deferring it to later phases that may not come forward.

- LCC and NH highlighted the importance of considering the impacts of local developments on the major and strategic road network, especially during peak traffic times. LCC also emphasised the significance of assessing movement by all modes and purposes throughout a typical day.

- The developer also consults the local community about the proposals, to get input to help ensure proposals integrate well into the surrounding area and to understand local concerns.

# Stage 2(a): Baseline Assessment

***Objective:*** *Conduct a thorough assessment of existing transport conditions, including traffic patterns, public transport availability (and spare capacity), and active travel infrastructure.*

Extensive data collection should be undertaken to understand current transport conditions and forecast future demand. This includes traffic counts, travel surveys, and analysis of existing transport infrastructure. The data collected should provide a baseline against which the scenarios can be evaluated.

## Section 2: Local Context

### Site Location

- The proposed development site is approximately 5 km south of the city centre.
- It is bordered by:
  - Residential developments to the north and east; and
  - Agricultural land to the south.
  - Major road network to the west.
- The site is predominantly agricultural, with some brownfield and existing residential properties with local access roads.

### Local Facilities and Indicative Active Travel Catchments

The development benefits from proximity to various local facilities. Walking and cycling distances are assessed. This established distances to:

- Education – Primary, Secondary, College, University;
- Healthcare – Hospitals, GP Surgeries, Dentist;
- Retail – Supermarkets, Local Food Store, Other Retail;
- Employment – Employment Areas;
- Leisure Purposes – Gyms, Swimming Centres, Multi Use Gaming Areas (MUGA) etc;
- All Other Relevant Purposes;
- Sustainable Transport (including public) – Train Stations, Bus Stations, Bus Stops, Sustainable Transport Hubs.

| Category | Recommended Distance from Site | Key Amenities & Facilities |
|---|---|---|
| **1** | **Within 200m** | Greenspace<br>Local shop<br>Nursery/ Creche |
| **2** | **Within 600m** | Primary school<br>Post Office<br>Public house/ restaurant<br>Small retail outlets<br>Community centre<br>Small park |
| **3** | **Within 800m** | Health centre |
| **4** | **Within 1 km** | Secondary school<br>Faith organisation |
| **5** | **Within 1.5 km** | Large retail store (supermarket)<br>Leisure/ recreation centre |
| **6** | **Within 2 km** | Large park (over 15 ha) |
| **7** | **Within 5 km** | Cultural/ entertainment centre<br>General hospital |
| **8** | **Within 10 km** | Major public facilities<br>Key museums |
| **9** | **Within 20 km** | Cathedral<br>City/ town hall<br>Major theatre<br>University |

| **Recommended Distances** | **Walk** | | | | **Public Transport** | | **Cycle** | |
|---|---|---|---|---|---|---|---|---|
| | **Commuting/ Education/ Recreation** | | **Other Non-commuter Journeys** | | **Distance to Bus Stop** | | **Distance to All Amenities** | |
| | *Distance (m)* | *Walk (mins)* | *Distance (m)* | *Walk (mins)* | *Distance (m)* | *Walk (mins)* | *Distance (m)* | *Cycle (mins)* |
| **Desirable** | 500 | 6 | 400 | 5 | 300 | 4 | 5000 | 20 |
| **Acceptable** | 1000 | 12 | 800 | 10 | 400 | 5 | | |
| **Preferred Maximum** | 2000 | 24 | 1200 | 15 | | | | |

Recommended distances are sourced from the 'Planning for Walking' document published by the Chartered Institution of Highways and Transportation (CIHT), as well as other good practice guidance.

*Note: Acceptable walking distances depend on a number of factors, including the quality of the route (condition, directness, lighting), topography, the destination, the perception of safety, and more. The Chartered Institution for Highways and Transportation (CIHT) document 'Providing for Journeys on Foot', suggests walk distances.*

| **Distances to Key Local Amenities *(m)*** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Category** *(Key Amenities & Facilities)* | **Facility Name** | **Walking Distance** *(actual route)* | | **Public Transport Distance** *(distance to bus stop - actual route)* | | **Cycling Distance** *(actual route)* | |
| | | *Actual* | *Rec.* | *Actual* | *Rec.* | *Actual* | *Rec.* |
| **1** | | | *200m* | | *400m* | | *5000m* |
| **2** | | | *600m* | | *400m* | | *5000m* |
| **3** | | | *800m* | | *400m* | | *5000m* |
| **4** | | | *1 km* | | *400m* | | *5000m* |
| **5** | | | *1.5 km* | | *400m* | | *5000m* |
| **6** | | | *2 km* | | *400m* | | *5000m* |
| **7** | | | *5 km* | | *400m* | | *5000m* |
| **8** | | | *10 km* | | *400m* | | *5000m* |
| **9** | | | *20 km* | | *400m* | | *5000m* |

*Note: Large sites may need to be split for measuring distances and have multiple centroids. Distances should utilise routes and not be measured as the crow flies.*

**Active Travel Links for Local Living**

- The site includes:
  - **?** Public Rights of Way (PROW) and quiet rural lanes, offering active travel connections to nearby communities;
  - Footpaths link the site to residential areas to the north and east; and
  - Formal footways and cycleways. New infrastructure will connect to and enhance these.
- National Cycle Routes are accessible within **?** km, connecting the area to the city centre and other destinations.
- Pedestrian and cycling facilities in the wider area are generally **of a good standard with footways and street lighting provided along all roads within the built-up area. There are dropped kerbs and tactile paving provided at key crossing points.** Some deficiencies were highlighted, which will be addressed through the off-site highways works (S278 works).

**Shared Travel Links**

- The development is well-served by key bus services, including high-frequency services, to and from key locations and areas. Bus stops will be provided so each dwelling will be within 300m-400m of a bus stop.
- The nearest railway station is accessible, within a **?** minute walk or a **?**-minute cycle and includes **?** secure cycle storage spaces.
- The nearest bus station is within a **?** minute walk or a **?** minute cycle catchment and includes **?** secure cycle storage spaces.

The analysis detailed below shows existing public transport services in the local area are frequent, accessible, and provide access to education and other key areas, locations, and amenities.

| No. | Route | Existing Bus Services: Typical Frequency *(minutes)* | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Monday - Friday | | | Saturday | | | Sunday |
| | | *Morn* | *Aft* | *Eve* | *Morn* | *Aft* | *Eve* | *Day* |
| **Bus Stop Location** | | | | | | | | |
| | | | | | | | | |
| **Bus Stop Location** | | | | | | | | |
| | | | | | | | | |

**Local Highway Network**

- The assessment includes a comprehensive description (i.e., roads in proximity to site, access to SRN, location in relation to movement infrastructure, restrictions and traffic regulation orders, layout, traffic signals, road safety measures, street lighting, usage, connectivity, and other characteristics);
    - Uses the local highway characteristics to **identify deficiencies** in infrastructure where these routes will be required by the site residents. Overcoming deficiencies encourages active and sustainable travel.
- Assessment is evidence and data-led, using surveyed traffic flows, assessing local trends, identify transport constraints, analysing demographics.
- ***Development must not prejudice the highway classification hierarchy or the duties of the LHA.***

**Collision Review**

- Collision data for the local highway network over the last 5 years is prepared. Must include:
    - Slight, serious, and fatal accidents;
    - Collision hotspots at key locations and junctions; and
    - Any other external factors which may influence road safety.
- *Where there are safety concerns, these are identified and addressed through off-site highways works (S278 works).*

## Section 3: Changes in Travel Behaviour and Guidance

**Assessment Travel Behaviour Analysis**

- The assessment considers general changes in travel behaviour.
- Covid-19 long-term changes have been integrated into TEMPro, so the assessment utilised this and will not make any assumptions regarding Covid-19 impacts.
- The TRICS guidance on Decide and Provide is referenced in the assessment.
- Car ownership levels are assessed. Census data shows that Lancashire has high levels of car ownership and so there is a greater need to ensure that routes were attractive to pedestrians and cyclists.
- Local industry is assessed and shows that manufacturing was a significant employer. As such, no assumptions regarding greater levels of home working are to be included in the assessment, which is more common in areas with high levels of office workers.

### Accessibility

- Accessibility is a core consideration for the Decide and Provide approach, so the analysis extends beyond commuter peak periods to include leisure, education, and daily needs.
- Accessibility is considered throughout the whole day and does not just focus on the typical commuter peak periods.

## Section 4: Proposed Development

### Development Scale and Overview

The development proposal is amended to make best use of the highway following the analysis of existing conditions, and the vision for the site.

The development is configured in such a way that the different elements of the proposal are all easily accessed. The mobility hub has been relocated next to the bus route, to encourage multi-modal trips. More consideration is given to access now that the preliminary assessment of existing characteristics is complete. The following documents (first draft) are prepared:

- Masterplan, including phasing strategy.
- Access plans, including detailed plans for the vehicular access, and a plan showing all movement around and to the site.
- Draft internal layout – for consideration of transport requirements (i.e. bus stop locations, measuring of distances, proposed car parking provision, carriageway/footway/cycle path widths, ensuring visibility splays are within highway).
- Visibility splay plans.
- Swept path analysis for servicing, delivery and public transport access.
- Outline plan for necessary traffic regulation orders, and PROW diversions if required.
- Mobility hub proposal. A community concierge team is proposed, with carpooling and e-bikes availability. The mobility hub will provide space for the local community and the building will include retail units to ensure it remains in use and available. Temporary mobility hubs will be provided from day one in the vicinity of residential sales centres within the site. This allows the principles to be adopted from day one.
- Construction Traffic Management Plan. The CTMP will consider phasing, access and layout proposals, to minimise disruption. It will assess routing,

timing, and volume of traffic accessing and egressing the site, ensuring that sensitive locations, such as local schools, are not impacted.

**Public Transport**

In order to ensure the site is sustainable, early discussions with the local bus operators take place. Proposed **revised timings, new routes and/or diversions of existing services are set out**, reflecting what the operators have said. Consideration is given to the site phasing, so that services start when there is sufficient demand, and the service is subsidised until it can become commercially viable.

| No. | Route | Proposed Bus Services: Typical Frequency *(minutes)* | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Monday - Friday | | | Saturday | | | Sunday |
| | | *Morn* | *Aft* | *Eve* | *Morn* | *Aft* | *Eve* | *Day* |
| **Bus Stop Location** | | | | | | | | |
| | | | | | | | | |
| **Bus Stop Location** | | | | | | | | |
| | | | | | | | | |

## Section 5: Trip Generation and Distribution

**Trip Generation**

Trip generation and traffic demand is calculated using TRICS data, a database that assesses trip rates based on similar developments across the UK. Person-trip and vehicle-trip data is used to analyse how trips would be distributed across different transport modes, including walking, cycling, public transport, and private vehicles (including relevant and agreed parameters and rationale behind analysis).

The tables below show the extensive trip generation analysis undertaken for this development proposal. This includes:

- Average total person trip rates and trips;
- Average total vehicle trip rates and trips;
- Trips by journey purpose (%);
- Total trips by journey purpose (people);
- Total trips by journey purpose (people);
- Method of travel to work (within 2km and outside 2km);
- Commuting multi-modal trip demand;
- Method of travel to education (within 2km and outside 2km);
- Education multi-modal trip demand (within 2km and outside 2km); and

- Recreation/ leisure multi-modal trip demand.

*Note: This analysis is supported by the raw data included in the appendices of the Transport Assessment.*

**Tables 1/2 -** Understanding the potential demand from the proposed development is considered in terms of the number of person and vehicle trips generated by the site. To achieve this, the TRICS database is used, selecting the appropriate parameters. The trip rates, and associated trips, are presented in Tables 1 and 2 below.

| Time | Average Total Person Trip Rates and Trips | | | | | |
|---|---|---|---|---|---|---|
| | **Trip Rate** *(per dwelling)* | | | **Trips** *(1,000 dwellings)* | | |
| | *Arrive* | *Depart* | *Two-way* | *Arrive* | *Depart* | *Two-way* |
| **07:00 - 08:00** | 0.106 | 0.496 | 0.602 | 106 | 496 | 602 |
| **08:00 - 09:00** | 0.210 | 0.767 | 0.977 | 210 | 767 | 977 |
| **09:00 - 10:00** | 0.208 | 0.281 | 0.489 | 208 | 281 | 489 |
| **10:00 - 11:00** | 0.177 | 0.235 | 0.412 | 177 | 235 | 412 |
| **11:00 - 12:00** | 0.183 | 0.208 | 0.391 | 183 | 208 | 391 |
| **12:00 - 13:00** | 0.226 | 0.215 | 0.441 | 226 | 215 | 441 |
| **13:00 - 14:00** | 0.225 | 0.213 | 0.438 | 225 | 213 | 438 |
| **14:00 - 15:00** | 0.259 | 0.270 | 0.529 | 259 | 270 | 529 |
| **15:00 - 16:00** | 0.512 | 0.281 | 0.793 | 512 | 281 | 793 |
| **16:00 - 17:00** | 0.515 | 0.264 | 0.779 | 515 | 264 | 779 |
| **17:00 - 18:00** | 0.582 | 0.252 | 0.834 | 582 | 252 | 834 |
| **18:00 - 19:00** | 0.531 | 0.292 | 0.823 | 531 | 292 | 823 |

Table 1

| Time | Average Total Vehicle Trip Rates and Trips | | | | | |
|---|---|---|---|---|---|---|
| | **Trip Rate** *(per dwelling)* | | | **Trips** *(1,000 dwellings)* | | |
| | *Arrive* | *Depart* | *Two-way* | *Arrive* | *Depart* | *Two-way* |
| **07:00 - 08:00** | 0.068 | 0.297 | 0.365 | 68 | 297 | 365 |
| **08:00 - 09:00** | 0.133 | 0.368 | 0.501 | 133 | 368 | 501 |
| **09:00 - 10:00** | 0.135 | 0.164 | 0.299 | 135 | 164 | 299 |
| **10:00 - 11:00** | 0.108 | 0.133 | 0.241 | 108 | 133 | 241 |
| **11:00 - 12:00** | 0.113 | 0.119 | 0.232 | 113 | 119 | 232 |
| **12:00 - 13:00** | 0.136 | 0.134 | 0.270 | 136 | 134 | 270 |
| **13:00 - 14:00** | 0.138 | 0.130 | 0.268 | 138 | 130 | 268 |
| **14:00 - 15:00** | 0.156 | 0.167 | 0.323 | 156 | 167 | 323 |
| **15:00 - 16:00** | 0.232 | 0.165 | 0.397 | 232 | 165 | 397 |
| **16:00 - 17:00** | 0.256 | 0.153 | 0.409 | 256 | 153 | 409 |
| **17:00 - 18:00** | 0.334 | 0.151 | 0.485 | 334 | 151 | 485 |
| **18:00 - 19:00** | 0.303 | 0.156 | 0.459 | 303 | 156 | 459 |

Table 2

**Table 3 -** To understand mode split, and in turn the number of vehicle trips generated by the site, consideration is given to the journey purpose of trips from residential areas using the National Travel Survey (NTS) (Monday to Friday only): England, 2015-2019. The NTS consists of face-to-face interviews and a seven-day self-completed written travel diary with database number 0502 providing a review of the trip start time by trip purpose for England. Table 3 below provides a summary of this information.

| Time | Trips by Journey Purpose *(%)* | | |
|---|---|---|---|
| | Commuting | Education | Recreation/ Leisure |
| 07:00 - 08:00 | 53% | 20% | 27% |
| 08:00 - 09:00 | 23% | 51% | 26% |
| 09:00 - 10:00 | 16% | 10% | 74% |
| 10:00 - 11:00 | 9% | 2% | 89% |
| 11:00 - 12:00 | 9% | 3% | 88% |
| 12:00 - 13:00 | 11% | 4% | 85% |
| 13:00 - 14:00 | 15% | 3% | 82% |
| 14:00 - 15:00 | 14% | 14% | 72% |
| 15:00 - 16:00 | 9% | 47% | 44% |
| 16:00 - 17:00 | 26% | 11% | 63% |
| 17:00 - 18:00 | 36% | 5% | 59% |
| 18:00 - 19:00 | 24% | 2% | 74% |

Table 3

**Tables 4/5 -** The total number of person trips summarised in Table 1, broken down by the journey purpose summarised in Table 3, results in a breakdown of trips by journey purposes as summarised in Tables 4 and 5 below.

| Time | Total Trips by Journey Purpose *(people)* | | | | | |
|---|---|---|---|---|---|---|
| | Commuting | | Education | | Recreation/ Leisure | |
| | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* |
| 07:00 - 08:00 | 56 | 263 | 21 | 99 | 29 | 134 |
| 08:00 - 09:00 | 48 | 176 | 107 | 391 | 55 | 199 |
| 09:00 - 10:00 | 33 | 45 | 21 | 28 | 154 | 208 |
| 10:00 - 11:00 | 16 | 21 | 4 | 5 | 158 | 209 |
| 11:00 - 12:00 | 16 | 19 | 5 | 6 | 161 | 183 |
| 12:00 - 13:00 | 25 | 24 | 9 | 9 | 192 | 183 |
| 13:00 - 14:00 | 34 | 32 | 7 | 6 | 185 | 175 |
| 14:00 - 15:00 | 36 | 38 | 36 | 38 | 186 | 194 |
| 15:00 - 16:00 | 46 | 25 | 241 | 132 | 225 | 124 |
| 16:00 - 17:00 | 134 | 69 | 57 | 29 | 324 | 166 |
| 17:00 - 18:00 | 210 | 91 | 29 | 13 | 343 | 149 |
| 18:00 - 19:00 | 127 | 70 | 11 | 6 | 393 | 216 |

Table 4

| Time | Total Trips by Journey Purpose *(vehicle)* | | | | | |
|---|---|---|---|---|---|---|
| | Commuting | | Education | | Recreation/ Leisure | |
| | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* |
| **07:00 - 08:00** | 36 | 157 | 14 | 59 | 18 | 80 |
| **08:00 - 09:00** | 31 | 85 | 68 | 188 | 35 | 96 |
| **09:00 - 10:00** | 22 | 26 | 14 | 16 | 100 | 121 |
| **10:00 - 11:00** | 10 | 12 | 2 | 3 | 96 | 118 |
| **11:00 - 12:00** | 10 | 11 | 3 | 4 | 99 | 105 |
| **12:00 - 13:00** | 15 | 15 | 5 | 5 | 116 | 114 |
| **13:00 - 14:00** | 21 | 20 | 4 | 4 | 113 | 107 |
| **14:00 - 15:00** | 22 | 23 | 22 | 23 | 112 | 120 |
| **15:00 - 16:00** | 21 | 15 | 109 | 77 | 102 | 73 |
| **16:00 - 17:00** | 67 | 40 | 28 | 17 | 161 | 96 |
| **17:00 - 18:00** | 120 | 54 | 17 | 8 | 197 | 89 |
| **18:00 - 19:00** | 73 | 37 | 6 | 3 | 224 | 115 |

Table 5

**Table 6 -** For commuting trips, travel to work used the 2011 Census database (Journey to Work profile). Table 6 below provides a summary of the mode split for commuting trips.

| Method of Travel to Work | *(%)* |
|---|---|
| **Underground, metro, light rail, tram** | 0% |
| **Train** | 1% |
| **Bus, minibus, or coach** | 12% |
| **Taxi** | 0% |
| **Motorcycle, scooter, or moped** | 1% |
| **Driving a car or van** | 69% |
| **Passenger in a car or van** | 5% |
| **Walk** | 5% |
| **Bicycle** | 5% |

Table 6

*Note: In this example, a 2km distance radius has been used as it is the preferred maximum walking distance for commuting, education, and recreation (as shown in Table 1.2). This distance radius should not be used as a proxy for all transport assessments. Using shorter distances with higher percentages would result in a more sustainable development site. Commuting will depend entirely on the local area and employment opportunities.*

**Table 7 -** Applying the mode split in Table 6 to the commuting trips presented in Table 4 results in a trip demand as summarised in Table 7 below.

An internalisation factor was not included in the assessment for commuting. *This may be appropriate depending on the type of employment within or adjacent to a site, and the housing stock being provided.*

| Time | Commuting Multi-modal Trip Demand | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Drive | | Passenger/ Taxi | | Walk | | Cycle | | Public Transport | |
| | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* |
| **07:00 - 08:00** | 29 | 137 | 4 | 21 | 3 | 13 | 8 | 37 | 11 | 53 |
| **08:00 - 09:00** | 25 | 92 | 4 | 11 | 2 | 9 | 7 | 25 | 10 | 35 |
| **09:00 - 10:00** | 17 | 23 | 3 | 4 | 2 | 2 | 5 | 6 | 7 | 9 |
| **10:00 - 11:00** | 8 | 11 | 1 | 2 | 1 | 1 | 2 | 3 | 3 | 4 |
| **11:00 - 12:00** | 9 | 10 | 1 | 2 | 1 | 1 | 2 | 3 | 3 | 4 |
| **12:00 - 13:00** | 13 | 12 | 2 | 2 | 1 | 1 | 3 | 3 | 5 | 5 |
| **13:00 - 14:00** | 18 | 17 | 3 | 3 | 2 | 2 | 5 | 4 | 7 | 6 |
| **14:00 - 15:00** | 19 | 20 | 3 | 4 | 2 | 2 | 5 | 5 | 7 | 8 |
| **15:00 - 16:00** | 24 | 13 | 4 | 4 | 2 | 1 | 6 | 4 | 9 | 5 |
| **16:00 - 17:00** | 70 | 36 | 11 | 10 | 7 | 3 | 19 | 10 | 27 | 14 |
| **17:00 - 18:00** | 109 | 47 | 17 | 15 | 10 | 5 | 29 | 13 | 42 | 18 |
| **18:00 - 19:00** | 66 | 36 | 10 | 10 | 6 | 4 | 18 | 10 | 25 | 14 |

Table 7

**Table 8 -** For education trips, the mode split of trips is considered using the NTS database 0614 which provides an education mode split by journey distance for students aged 5–16. 50% oTwo mode split profiles are considered (within 2km and outside 2km). Table 8 below provides a summary of the mode split for education trips.

| Method of Travel to Education | Within 2km Radius *(%)* | Outside 2km Radius *(%)* |
|---|---|---|
| **Walk** | 61% | 3% |
| **Bicycle** | 3% | 1% |
| **Car/ van** | 32% | 58% |
| **Private bus** | 0% | 0% |
| **Local bus** | 3% | 27% |
| **Surface rail** | 0% | 0% |
| **Other Transport** | 1% | 11% |

Table 8

**Tables 9/10 -** The split between trips conducted within 2km of the site and trips travelling outside the 2km catchment are considered. Applying the mode split in Table 8 to the education trips presented in Table 4 results in a trip demand as summarised in Tables 9 and 10 below.

| Time | Education Multi-modal Trip Demand *(within 2km)* | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Drive | | Walk | | Cycle | | Public Transport | |
| | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* |
| **07:00 - 08:00** | 3 | 16 | 6 | 30 | 0 | 1 | 0 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **08:00 - 09:00** | 17 | 63 | 33 | 119 | 2 | 6 | 2 | 6 |
| **09:00 - 10:00** | 3 | 4 | 6 | 9 | 0 | 0 | 0 | 0 |
| **10:00 - 11:00** | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| **11:00 - 12:00** | 1 | 1 | 2 | 2 | 0 | 0 | 0 | 0 |
| **12:00 - 13:00** | 1 | 1 | 3 | 3 | 0 | 0 | 0 | 0 |
| **13:00 - 14:00** | 1 | 1 | 2 | 2 | 0 | 0 | 0 | 0 |
| **14:00 - 15:00** | 6 | 6 | 11 | 12 | 1 | 1 | 1 | 1 |
| **15:00 - 16:00** | 39 | 21 | 73 | 40 | 4 | 2 | 4 | 2 |
| **16:00 - 17:00** | 9 | 5 | 17 | 9 | 1 | 0 | 1 | 0 |
| **17:00 - 18:00** | 5 | 2 | 9 | 4 | 0 | 0 | 0 | 0 |
| **18:00 - 19:00** | 2 | 1 | 3 | 2 | 0 | 0 | 0 | 0 |

Table 9

| **Time** | **Education Multi-modal Trip Demand *(outside 2km)*** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Drive** | | **Walk** | | **Cycle** | | **Public Transport** | |
| | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* |
| **07:00 - 08:00** | 6 | 29 | 0 | 1 | 0 | 0 | 3 | 13 |
| **08:00 - 09:00** | 31 | 113 | 2 | 6 | 1 | 2 | 14 | 53 |
| **09:00 - 10:00** | 6 | 8 | 0 | 0 | 0 | 0 | 3 | 4 |
| **10:00 - 11:00** | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| **11:00 - 12:00** | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 1 |
| **12:00 - 13:00** | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 1 |
| **13:00 - 14:00** | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 1 |
| **14:00 - 15:00** | 11 | 11 | 1 | 1 | 0 | 0 | 5 | 5 |
| **15:00 - 16:00** | 70 | 38 | 4 | 2 | 1 | 1 | 32 | 18 |
| **16:00 - 17:00** | 16 | 8 | 1 | 0 | 0 | 0 | 8 | 4 |
| **17:00 - 18:00** | 8 | 4 | 0 | 0 | 0 | 0 | 4 | 2 |
| **18:00 - 19:00** | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 1 |

Table 10

**Table 11 –** For Leisure/Recreation, the NTS data demonstrates that in the AM peak this constitutes 26% of journeys (i.e., walking the dog, visiting friends, shopping, personal business, holidays, day trips etc). This number increases to 85% around midday and 59% in the PM peak. The proposals include for a Local Centre, including retail and community facilities and the scale of development in terms of dwellings, which will ensure a number of trips are internalised within the site.

For the purpose of assessment, a judgement has been made that 20% of leisure/recreation trips are internal trips which remain within the site and 80% are external trips which travel off site. This assessment focuses on the 80% of trips which leave the site to access leisure/ recreation opportunities offsite.

As there is no NTS database which provide mode splits for leisure/ recreation trips, the assessment applies the same mode split used for commuting trips as summarised in Table 3. As a large proportion of trips are considered internal to the

site, the mode split for trips greater then 2km has been utilised. A breakdown of the external leisure/ recreation trips is provided in Table 11 below.

| Time | Recreation/Leisure Multi-modal Trip Demand (People) (Scenario 5) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Drive | | Passenger/ Taxi | | Walk | | Cycle | | Public Transport | |
| | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* |
| **07:00 - 08:00** | 8 | 33 | 1 | 5 | 1 | 3 | 2 | 9 | 3 | 13 |
| **08:00 - 09:00** | 14 | 40 | 2 | 6 | 1 | 4 | 4 | 11 | 6 | 15 |
| **09:00 - 10:00** | 42 | 50 | 6 | 8 | 4 | 5 | 11 | 14 | 16 | 19 |
| **10:00 - 11:00** | 40 | 49 | 6 | 8 | 4 | 5 | 11 | 13 | 15 | 19 |
| **11:00 - 12:00** | 41 | 44 | 6 | 7 | 4 | 4 | 11 | 12 | 16 | 17 |
| **12:00 - 13:00** | 48 | 47 | 7 | 7 | 5 | 5 | 13 | 13 | 18 | 18 |
| **13:00 - 14:00** | 47 | 44 | 7 | 7 | 5 | 4 | 13 | 12 | 18 | 17 |
| **14:00 - 15:00** | 47 | 50 | 7 | 8 | 4 | 5 | 13 | 13 | 18 | 19 |
| **15:00 - 16:00** | 42 | 30 | 7 | 5 | 4 | 3 | 11 | 8 | 16 | 12 |
| **16:00 - 17:00** | 67 | 40 | 10 | 6 | 6 | 4 | 18 | 11 | 26 | 15 |
| **17:00 - 18:00** | 82 | 37 | 13 | 6 | 8 | 4 | 22 | 10 | 32 | 14 |
| **18:00 - 19:00** | 93 | 48 | 14 | 7 | 9 | 5 | 25 | 13 | 36 | 18 |

Table 11

### Trip Distribution

- The Census 2011 Journey to Work dataset and National Travel Survey data are utilised to model trip patterns. This includes determining the likely destinations for trips, such as employment hubs, schools, and shopping centres in the local and surrounding areas.

- In all scenarios, trips are assigned to the model zones contained within the micro-simulation model. To assist with the distribution exercise, the model zones have been divided into five main categories as follows:
    - Zones 0 – 199; consist of mainly residential land uses;
    - Zones 200 – 299; consist of mixed land uses;
    - Zones 300 – 399; consist of education land uses;
    - Zones 400 – 499; consist of employment land uses; and
    - Zones 900 – 999; are model entry and exit zones.

- The tables below show the extensive trip distribution analysis undertaken for this development proposal. This includes:
    - Commuting trip distribution (per model zone);
    - Education trip distribution; and
    - Recreation / leisure trip distribution

*Note: This analysis is supported by the raw data included in the appendices of the Transport Assessment.*

The trip distribution exercise for commuting trips uses Census 011 Journey to Work (JTW) data, and model zones. The JTW destination data is extracted for those living within the sites MSOA. The JTW data details the destination MSOAs from which individuals travel to access employment from the sites MSOA.

Initially, the JTW data is extracted from the NOMIS website for people who are currently living within the sites MSOA and the MSOA they travel to for work. This exercise considers car drivers only and does not include all modes of transport. Each MSOA is then assigned an X and Y coordinate so that it can be plotted geographically within MapInfo.

Once imported, software is utilised to provide the most direct routes to/from the sites MSOA to all MSOAs within a 60-minute drive time of the site. This catchment represents a reasonable maximum journey time for commuting trips. The software considers the most direct route based on time and distance and also uses turn restrictions. This exercise considered trips to the site and trips from the site during the morning, inter-peak, and evening peak periods. While there were minor changes in the routes for journeys to and from the site there were no changes to the routes taken based on the time of day.

An initial distribution exercise is then conducted assigning trips leaving the model study area to the 900 entry/ exit zones. This is summarised in Table 12 below.

| Zone | Commuting Vehicle Trip Distribution *(per model zone)* | | | |
|---|---|---|---|---|
| | Arrive | | Depart | |
| | *%* | *12 hour trips* | *%* | *12 hour trips* |
| 900 | 10.955% | 49 | 10.047% | 50 |
| 901 | 0.545% | 2 | 0.545% | 3 |
| 902 | 3.389% | 15 | 3.389% | 17 |
| 903 | 0.000% | 0 | 0.000% | 0 |
| 904 | 0.424% | 2 | 0.424% | 2 |
| 905 | 0.000% | 0 | 0.000% | 0 |
| 906 | 8.352% | 37 | 9.139% | 45 |
| 907 | 2.118% | 9 | 4.237% | 21 |
| 908 | 1.997% | 9 | 0.000% | 0 |
| 909 | 28.265% | 126 | 39.341% | 195 |
| 910 | 9.502% | 42 | 0.000% | 0 |
| 911 | 1.211% | 5 | 1.211% | 6 |
| 912 | 1.816% | 8 | 1.029% | 5 |
| 913 | 0.000% | 0 | 0.787% | 4 |
| 914 | 0.000% | 0 | 0.000% | 0 |
| 915 | 12.166% | 54 | 10.592% | 52 |

Table 12

**Table 13 -** Following the initial distribution exercise, the MSOAs within the model study area and the model zones are overlayed in MapInfo to consider which zones commuters travel to within the study area. The residentially-led land use zones 0 – 199 are excluded from this analysis. For MSOA's which had more than one zone within them, a proportion of the Census 2011 trips was assigned to each zone based on their size and the employment uses. The resultant trip distribution is presented in Table 13 below.

| Zone | Commuting Vehicle Trip Distribution *(per model zone)* | | | |
|---|---|---|---|---|
| | Arrive | | Depart | |
| | *%* | *12 hour trips* | *%* | *12 hour trips* |
| 200 | 0.393% | 2 | 0.393% | 2 |
| 201 | 0.309% | 1 | 0.309% | 2 |
| 202 | 0.224% | 1 | 0.224% | 1 |
| 203 | 0.672% | 3 | 0.672% | 3 |
| 204 | 2.978% | 13 | 2.978% | 15 |
| 205 | 0.496% | 2 | 0.496% | 2 |
| 206 | 0.744% | 3 | 0.744% | 4 |
| 207 | 0.629% | 3 | 0.629% | 3 |
| 300 | 1.059% | 5 | 1.059% | 5 |
| 301 | 0.678% | 3 | 0.678% | 3 |
| 302 | 0.339% | 2 | 0.339% | 2 |
| 303 | 1.059% | 5 | 1.059% | 5 |
| 304 | 0.079% | 0 | 0.079% | 0 |
| 305 | 0.309% | 1 | 0.309% | 2 |
| 306 | 0.079% | 0 | 0.079% | 0 |
| 307 | 0.139% | 1 | 0.139% | 1 |
| 308 | 0.209% | 1 | 0.00209 | 1 |
| 309 | 0.139% | 1 | 0.00139 | 1 |
| 400 | 0.393% | 2 | 0.00393 | 2 |
| 401 | 1.235% | 6 | 0.01235 | 6 |
| 402 | 0.209% | 1 | 0.00209 | 1 |
| 403 | 0.209% | 1 | 0.00209 | 1 |
| 404 | 0.209% | 1 | 0.00209 | 1 |
| 405 | 0.278% | 1 | 0.00278 | 1 |
| 407 | 0.744% | 3 | 0.00744 | 4 |
| 408 | 0.678% | 3 | 0.00678 | 3 |
| 409 | 0.224% | 1 | 0.00224 | 1 |
| 410 | 1.634% | 7 | 0.01634 | 8 |
| 411 | 2.911% | 13 | 0.02911 | 14 |

Table 13

**Table 14 -** For education trips, a separate distribution profile is developed for school trips within 2 km and school trips outside of 2 km. As specific schools are considered for the trip generation exercise, the model zones that these schools fall into are used for this exercise. The trip distribution for education is provided in Table 14 below.

| Zone | Education Vehicle Trip Distribution | | | | | |
|---|---|---|---|---|---|---|
| | **Within 2 km** *(Daily Trips)* | | | **Outside 2 km** *(Daily Trips)* | | |
| | *%* | *Arrive* | *Depart* | *%* | *Arrive* | *Depart* |
| 5 | 0.00% | 0 | 0 | 14.29% | 27 | 38 |
| 300 | 0.00% | 0 | 0 | 14.29% | 27 | 38 |
| 301 | 0.00% | 0 | 0 | 14.29% | 27 | 38 |
| 304 | 0.00% | 0 | 0 | 14.29% | 27 | 38 |
| 305 | 33.33% | 30 | 42 | 0.00% | 0 | 0 |
| 307 | 0.00% | 0 | 0 | 14.29% | 27 | 38 |
| 308 | 0.00% | 0 | 0 | 14.29% | 27 | 38 |
| 309 | 33.33% | 30 | 42 | 0.00% | 0 | 0 |
| 401 | 33.33% | 30 | 42 | 0.00% | 0 | 0 |
| 913 | 0.00% | 0 | 0 | 14.29% | 27 | 38 |

Table 14

For the recreation/ leisure trips, the assessment considers the external zones that residents would travel to for recreation or leisure purposes. This exercise focuses on locations where there is a defined shopping centre or retail high street, a gym, a leisure centre, and the town/ city centre. The locations selected, their respective zones, and the distribution assigned to these zones is presented in Table 15 below.

| Zone | Recreation / Leisure Vehicle Trip Distribution | | | |
|---|---|---|---|---|
| | **Area/ Place** | **%** | **Arrive** | **Depart** |
| 909 | City Centre | 12.5% | 82 | 74 |
| 910 | City Centre | 12.5% | 82 | 74 |
| 402 | Local Recreation/ Leisure Area | 6.7% | 44 | 40 |
| 403 | Local Recreation/ Leisure Area | 6.7% | 44 | 40 |
| 409 | Local Recreation/ Leisure Area | 6.7% | 44 | 40 |
| 913 | Town Centre | 15.0% | 99 | 89 |
| 1 | Leisure Centre | 12.5% | 82 | 74 |
| 411 | Gym | 12.5% | 82 | 74 |
| 410 | Retail Park | 15.0% | 99 | 89 |

Table 15

**Summary**

- The methodology is clearly set out in the Transport Assessment. The table below shows the total multi-modal trip demand (1,000 units).

*Note: This analysis is supported by the raw data included in the appendices of the Transport Assessment.*

| Time | Total Multi-Modal Trip Demand *(1,000 units)* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Drive | | Passenger/ Taxi | | Walk | | Cycle | | Public Transport | |
| | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* |
| **07:00 - 08:00** | 46 | 215 | 7 | 32 | 10 | 48 | 10 | 48 | 17 | 80 |
| **08:00 - 09:00** | 88 | 308 | 13 | 41 | 38 | 138 | 13 | 43 | 31 | 109 |
| **09:00 - 10:00** | 68 | 87 | 10 | 13 | 12 | 16 | 16 | 20 | 26 | 33 |
| **10:00 - 11:00** | 50 | 62 | 8 | 10 | 6 | 7 | 13 | 16 | 19 | 24 |
| **11:00 - 12:00** | 52 | 56 | 8 | 9 | 7 | 7 | 14 | 14 | 20 | 21 |
| **12:00 - 13:00** | 65 | 64 | 10 | 10 | 9 | 8 | 17 | 16 | 25 | 24 |
| **13:00 - 14:00** | 68 | 64 | 10 | 10 | 8 | 8 | 18 | 17 | 26 | 24 |
| **14:00 - 15:00** | 82 | 87 | 12 | 14 | 18 | 19 | 18 | 20 | 31 | 32 |
| **15:00 - 16:00** | 175 | 103 | 25 | 16 | 83 | 46 | 23 | 14 | 62 | 36 |
| **16:00 - 17:00** | 162 | 89 | 24 | 18 | 31 | 17 | 38 | 21 | 61 | 34 |
| **17:00 - 18:00** | 204 | 90 | 31 | 21 | 28 | 12 | 52 | 23 | 78 | 34 |
| **18:00 - 19:00** | 164 | 87 | 25 | 18 | 19 | 10 | 43 | 23 | 63 | 33 |

Table 16

The level of detail included above demonstrates a comprehensive approach to analysis. For smaller or less significant developments where the proposed project is **not** expected to substantially impact the highway network, an alternative, simplified approach can be agreed.

# Stage 2(b): Scenario Testing

**Objective:** Develop multiple scenarios to explore different ways of achieving the vision, focusing on reducing car dependency and enhancing sustainable transport options.

*Different scenarios should be developed to explore how the vision could be achieved. These scenarios could consider various factors such as population growth, travel behaviour changes, and potential infrastructure improvements. Each scenario should be assessed for its feasibility and impact on the transport network.*

## Section 6: Highway Network Assessment

### Study Area

- The study area **agreed with the LHA** includes main key roads and junctions; strategic road connections to the city centre and M6 motorway.
- It is ensured all key junctions and corridors potentially affected by the development are assessed.
- Each is reviewed using the modelling software, with a summary of the impact of the development proposals on routes.

*Note: This analysis is supported by the raw data included in the appendices of the Transport Assessment.*

### Scenario Testing

- The following scenarios are tested:
  - Scenario 1 – 2025 Base;
  - Scenario 2 – 2025 Base + Growth to 2035 + Committed Development; and
  - Scenario 3 – 2025 Base + Growth to 2035 + Committed Development + Development at 1,000 dwellings; (Do Minimum)
  - Scenario 4 – 2025 Base + Growth to 2035 + Committed Development + Development at 1,000 dwellings; (With Limited Highways Measures)

*Note: The base scenario is validated using queue lengths. This analysis is supported by the raw data included in the appendices of the Transport Assessment. Scenarios and assumptions agreed. For limited highways measures scenario, vehicle trips are reduced, but pedestrian phases at signalised junctions were more frequent.*

- All scenarios are run for all junctions within scope of study agreed with the LHA.
- Models seek to:
    - Understand the impact of the proposal on the highway
    - Use this to inform proposals
    - Be validated, with a clear and transparent methodology for the full process.

**Main Case Network Results**

Modelling utilises a number of different proprietary software packages. LinSig is used for some junctions. Microsimulation is also used.

Modelling shows that areas of the network experience a significant level of congestion and delay with the do minimum proposal, and a greater level of modal shift is required than the low modal shift scenario to make the proposal acceptable in highways and transport terms. More certainty is required that a high sustainable travel uptake can be achieved, to limit vehicle numbers.

***The proposal is amended with a new scenario - Enhanced Highway Measures (Scenario 5), proposed.***

Scenario 5 - 2025 Base + Growth to 2035 + Committed Development + Development at 1,000 dwellings; (With Enhanced Highways Measures - High Modal Shift).

*Please turn over*

The enhanced measures will include a bus gate on the site, to facilitate better and more direct public transport access. School bus services will be provided to all schools, from the site. This improves access to 3 of the schools outside 2km more attractive. **A modal shift of 50% is expected – shift from cars to public transport for the school trips >2km.**

| Time | Education >2km Multi-modal Trip Demand (People) (Scenario 5) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Drive | | Passenger/ Taxi | | Walk | | Cycle | | Public Transport | |
| | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* |
| **07:00 - 08:00** | 1 | 4 | 1 | 5 | 0 | 1 | 0 | 0 | 8 | 38 |
| **08:00 - 09:00** | 4 | 16 | 6 | 22 | 2 | 6 | 1 | 2 | 41 | 151 |
| **09:00 - 10:00** | 1 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 8 | 11 |
| **10:00 - 11:00** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| **11:00 - 12:00** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| **12:00 - 13:00** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| **13:00 - 14:00** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 |
| **14:00 - 15:00** | 1 | 2 | 2 | 2 | 1 | 1 | 0 | 0 | 14 | 15 |
| **15:00 - 16:00** | 10 | 5 | 13 | 7 | 4 | 2 | 1 | 1 | 93 | 51 |
| **16:00 - 17:00** | 2 | 1 | 3 | 2 | 1 | 0 | 0 | 0 | 22 | 11 |
| **17:00 - 18:00** | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 11 | 5 |
| **18:00 - 19:00** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 2 |

Table 17

| Time | Education >2km Multi-modal Trip Demand (People) (Difference) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Drive | | Passenger/ Taxi | | Walk | | Cycle | | Public Transport | |
| | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* |
| **07:00 - 08:00** | -5 | -25 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 25 |
| **08:00 - 09:00** | -27 | -98 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 98 |
| **09:00 - 10:00** | -5 | -7 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 7 |
| **10:00 - 11:00** | -1 | -1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| **11:00 - 12:00** | -1 | -2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| **12:00 - 13:00** | -2 | -2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| **13:00 - 14:00** | -2 | -2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| **14:00 - 15:00** | -9 | -9 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 9 |
| **15:00 - 16:00** | -60 | -33 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | 33 |
| **16:00 - 17:00** | -14 | -7 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 7 |
| **17:00 - 18:00** | -7 | -3 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 3 |
| **18:00 - 19:00** | -3 | -1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 |

Table 18

The bus gate access will have suitable pedestrian and cycling access too. **Walking and cycling increase marginally (+9%, +7%) for schools <2km.** As there are high levels of sustainable travel already, getting a greater shift is more challenging. Car trips reduce accordingly.

| Time | Education <2km Multi-modal Trip Demand (People) (Scenario 5) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Drive | | Passenger/ Taxi | | Walk | | Cycle | | Public Transport | |
| | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* |
| **07:00 - 08:00** | 2 | 8 | 0 | 0 | 7 | 35 | 1 | 5 | 0 | 1 |
| **08:00 - 09:00** | 9 | 31 | 1 | 2 | 37 | 137 | 5 | 20 | 2 | 6 |
| **09:00 - 10:00** | 2 | 2 | 0 | 0 | 7 | 10 | 1 | 1 | 0 | 0 |
| **10:00 - 11:00** | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 |
| **11:00 - 12:00** | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 |
| **12:00 - 13:00** | 1 | 1 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 |
| **13:00 - 14:00** | 1 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 |
| **14:00 - 15:00** | 3 | 3 | 0 | 0 | 13 | 13 | 2 | 2 | 1 | 1 |
| **15:00 - 16:00** | 19 | 11 | 1 | 1 | 84 | 46 | 12 | 7 | 4 | 2 |
| **16:00 - 17:00** | 5 | 2 | 0 | 0 | 20 | 10 | 3 | 1 | 1 | 0 |
| **17:00 - 18:00** | 2 | 1 | 0 | 0 | 10 | 4 | 1 | 1 | 0 | 0 |
| **18:00 - 19:00** | 1 | 0 | 0 | 0 | 4 | 2 | 1 | 0 | 0 | 0 |

Table 19

| Time | Education <2km Multi-modal Trip Demand (People) (Difference) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Drive | | Passenger/ Taxi | | Walk | | Cycle | | Public Transport | |
| | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* |
| **07:00 - 08:00** | -2 | -8 | 0 | 0 | 1 | 4 | 1 | 3 | 0 | 0 |
| **08:00 - 09:00** | -9 | -31 | 0 | 0 | 5 | 18 | 4 | 14 | 0 | 0 |
| **09:00 - 10:00** | -2 | -2 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 |
| **10:00 - 11:00** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **11:00 - 12:00** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **12:00 - 13:00** | -1 | -1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **13:00 - 14:00** | -1 | -1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **14:00 - 15:00** | -3 | -3 | 0 | 0 | 2 | 2 | 1 | 1 | 0 | 0 |
| **15:00 - 16:00** | -19 | -11 | 0 | 0 | 11 | 6 | 8 | 5 | 0 | 0 |
| **16:00 - 17:00** | -5 | -2 | 0 | 0 | 3 | 1 | 2 | 1 | 0 | 0 |
| **17:00 - 18:00** | -2 | -1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| **18:00 - 19:00** | -1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 20

Public transport services will utilise the bus gate, cutting down journey times by public transport. **30% of the external leisure trips change - private car shift to public transport.**

| Time | Leisure/Recreation Multi-modal Trip Demand (People) (Scenario 5) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Drive | | Passenger/ Taxi | | Walk | | Cycle | | Public Transport | |
| | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* |
| **07:00-08:00** | 3 | 14 | 1 | 5 | 1 | 3 | 2 | 9 | 7 | 32 |
| **08:00- 9:00** | 6 | 17 | 2 | 6 | 1 | 4 | 4 | 11 | 14 | 38 |
| **09:00-10:00** | 18 | 21 | 6 | 8 | 4 | 5 | 11 | 14 | 40 | 49 |
| **10:00-11:00** | 17 | 21 | 6 | 8 | 4 | 5 | 11 | 13 | 38 | 47 |
| **11:00-12:00** | 18 | 18 | 6 | 7 | 4 | 4 | 11 | 12 | 40 | 42 |
| **12:00-13:00** | 20 | 20 | 7 | 7 | 5 | 5 | 13 | 13 | 46 | 46 |
| **13:00-14:00** | 20 | 19 | 7 | 7 | 5 | 4 | 13 | 12 | 45 | 43 |
| **14:00-15:00** | 20 | 21 | 7 | 8 | 4 | 5 | 13 | 13 | 45 | 48 |
| **15:00-16:00** | 18 | 13 | 7 | 5 | 4 | 3 | 11 | 8 | 41 | 29 |
| **16:00-17:00** | 28 | 17 | 10 | 6 | 6 | 4 | 18 | 11 | 65 | 39 |
| **17:00-18:00** | 35 | 16 | 13 | 6 | 8 | 4 | 22 | 10 | 79 | 36 |
| **18:00-19:00** | 39 | 20 | 14 | 7 | 9 | 5 | 25 | 13 | 90 | 46 |

Table 21

| Time | Leisure/Recreation Multi-modal Trip Demand (People) (Difference) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Drive | | Passenger/ Taxi | | Walk | | Cycle | | Public Transport | |
| | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* |
| **07:00 - 08:00** | -4 | -19 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 19 |
| **08:00 - 09:00** | -8 | -23 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 23 |
| **09:00 - 10:00** | -24 | -29 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 29 |
| **10:00 - 11:00** | -23 | -28 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 28 |
| **11:00 - 12:00** | -24 | -25 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 25 |
| **12:00 - 13:00** | -28 | -27 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 27 |
| **13:00 - 14:00** | -27 | -26 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 26 |
| **14:00 - 15:00** | -27 | -29 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 29 |
| **15:00 - 16:00** | -24 | -17 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 17 |
| **16:00 - 17:00** | -39 | -23 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 23 |
| **17:00 - 18:00** | -47 | -21 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 21 |
| **18:00 - 19:00** | -54 | -28 | 0 | 0 | 0 | 0 | 0 | 0 | 54 | 28 |

Table 22

**30% of commuters shift – private car to public transport.**

| Time | Commuting Multi-modal Trip Demand (People) (Scenario 5) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Drive | | Passenger/ Taxi | | Walk | | Cycle | | Public Transport | |
| | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* |
| **07:00 - 08:00** | 12 | 58 | 4 | 21 | 3 | 13 | 8 | 37 | 28 | 131 |
| **08:00 - 09:00** | 11 | 39 | 4 | 11 | 2 | 9 | 7 | 25 | 24 | 88 |
| **09:00 - 10:00** | 7 | 10 | 3 | 4 | 2 | 2 | 5 | 6 | 17 | 22 |
| **10:00 - 11:00** | 4 | 5 | 1 | 2 | 1 | 1 | 2 | 3 | 8 | 11 |
| **11:00 - 12:00** | 4 | 4 | 1 | 2 | 1 | 1 | 2 | 3 | 8 | 9 |
| **12:00 - 13:00** | 5 | 5 | 2 | 2 | 1 | 1 | 3 | 3 | 12 | 12 |
| **13:00 - 14:00** | 7 | 7 | 3 | 3 | 2 | 2 | 5 | 4 | 17 | 16 |
| **14:00 - 15:00** | 8 | 8 | 3 | 4 | 2 | 2 | 5 | 5 | 18 | 19 |
| **15:00 - 16:00** | 10 | 6 | 4 | 4 | 2 | 1 | 6 | 4 | 23 | 13 |
| **16:00 - 17:00** | 29 | 15 | 11 | 10 | 7 | 3 | 19 | 10 | 67 | 34 |
| **17:00 - 18:00** | 46 | 20 | 17 | 15 | 10 | 5 | 29 | 13 | 105 | 45 |
| **18:00 - 19:00** | 28 | 15 | 10 | 10 | 6 | 4 | 18 | 10 | 64 | 35 |

Table 23

| Time | Commuting Multi-modal Trip Demand (People) (Difference) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Drive | | Passenger/ Taxi | | Walk | | Cycle | | Public Transport | |
| | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* |
| **07:00 - 08:00** | -17 | -79 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 79 |
| **08:00 - 09:00** | -14 | -53 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 53 |
| **09:00 - 10:00** | -10 | -13 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 13 |
| **10:00 - 11:00** | -5 | -6 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 6 |
| **11:00 - 12:00** | -5 | -6 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 6 |
| **12:00 - 13:00** | -7 | -7 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 7 |
| **13:00 - 14:00** | -10 | -10 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 10 |
| **14:00 - 15:00** | -11 | -11 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 11 |
| **15:00 - 16:00** | -14 | -8 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 8 |
| **16:00 - 17:00** | -40 | -21 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 21 |
| **17:00 - 18:00** | -63 | -27 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 27 |
| **18:00 - 19:00** | -38 | -21 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 21 |

Table 24

This impacts trips in the following way:

| Time | Total Multi-Modal Trip Demand (1,000 units) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Drive | | Passenger/ Taxi | | Walk | | Cycle | | Public Transport | |
| | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* |
| **07:00 - 08:00** | 18 | 84 | 7 | 32 | 11 | 53 | 11 | 51 | 44 | 203 |
| **08:00 - 09:00** | 30 | 103 | 13 | 41 | 43 | 155 | 17 | 57 | 81 | 283 |
| **09:00 - 10:00** | 27 | 35 | 10 | 13 | 13 | 17 | 17 | 21 | 65 | 82 |
| **10:00 - 11:00** | 21 | 26 | 8 | 10 | 6 | 8 | 13 | 16 | 48 | 60 |
| **11:00 - 12:00** | 22 | 23 | 8 | 9 | 7 | 7 | 14 | 15 | 50 | 54 |
| **12:00 - 13:00** | 27 | 26 | 10 | 10 | 9 | 9 | 17 | 17 | 62 | 61 |
| **13:00 - 14:00** | 28 | 27 | 10 | 10 | 9 | 8 | 18 | 17 | 65 | 61 |
| **14:00 - 15:00** | 32 | 34 | 12 | 14 | 20 | 20 | 20 | 21 | 78 | 82 |
| **15:00 - 16:00** | 57 | 34 | 25 | 16 | 94 | 52 | 31 | 19 | 160 | 95 |
| **16:00 - 17:00** | 65 | 36 | 24 | 18 | 34 | 18 | 40 | 22 | 154 | 84 |
| **17:00 - 18:00** | 84 | 37 | 31 | 21 | 29 | 13 | 53 | 23 | 195 | 86 |
| **18:00 - 19:00** | 69 | 36 | 25 | 18 | 19 | 10 | 44 | 23 | 158 | 84 |

Table 25

| Time | Trip Difference from Scenario 4 to Scenario 5<br><br>Enhanced Highway Measures - Multi-Modal Trip Demand *(1,000 units)* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Drive | | Passenger/ Taxi | | Walk | | Cycle | | Public Transport | |
| | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* | *Arrive* | *Depart* |
| **07:00 - 08:00** | -28 | -131 | 0 | 0 | 1 | 4 | 1 | 3 | 27 | 123 |
| **08:00 - 09:00** | -58 | -205 | 0 | 0 | 5 | 18 | 4 | 14 | 50 | 174 |
| **09:00 - 10:00** | -41 | -52 | 0 | 0 | 1 | 1 | 1 | 1 | 39 | 50 |
| **10:00 - 11:00** | -29 | -36 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 36 |
| **11:00 - 12:00** | -31 | -33 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 32 |
| **12:00 - 13:00** | -38 | -37 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 37 |
| **13:00 - 14:00** | -40 | -37 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 37 |
| **14:00 - 15:00** | -50 | -53 | 0 | 0 | 2 | 2 | 1 | 1 | 47 | 50 |
| **15:00 - 16:00** | -118 | -69 | 0 | 0 | 11 | 6 | 8 | 5 | 98 | 58 |
| **16:00 - 17:00** | -98 | -53 | 0 | 0 | 3 | 1 | 2 | 1 | 93 | 51 |
| **17:00 - 18:00** | -120 | -53 | 0 | 0 | 1 | 1 | 1 | 0 | 117 | 52 |
| **18:00 - 19:00** | -96 | -51 | 0 | 0 | 0 | 0 | 0 | 0 | 95 | 50 |

Table 26

The new trips are distributed across the network. This is run through agreed models with the increase in sustainable travel also reflected (e.g. ped phase call frequency). **The assessment, and the infrastructure to support the development and manage the highways impacts, are agreed with the LHA.**

**National Highways Network Results**

- Impacts on the strategic road network, including key A roads and motorways, are analysed.
- Under the National Highways case, scenario testing showed the development's traffic impacts are:
    - Minor increases in delay in the AM and PM peak periods, which are to be mitigated.

The Applicant has engaged with National Highways throughout the process, and no further changes to the proposal, are required at this stage.

## Stage 3: Implementation Plan

**Objective:** Develop a detailed implementation plan outlining the steps, timelines, and responsibilities for delivering the transport measures.

---

*A detailed implementation plan should be developed, outlining the steps needed to achieve the vision. This plan should include timelines, responsibilities, and funding strategies. It should also identify key milestones and performance indicators to monitor progress.*

---

**Travel Plan**

- Developer is committed to providing a comprehensive Travel Plan for the site which will include Personalised Travel Planning (PTP). The plan aims to reduce car dependency and encourage the use of public and active transport options.
- The Travel Plan will promote sustainable travel behaviours through ongoing monitoring and engagement with residents. The scope of the plan encompasses mitigation surrounding traffic congestion, vehicle parking, public transport, cycling infrastructure, and other related amenities.
- The Travel Plan will address opportunities to maximise sustainable travel, encompassing location, layout, and present circumstances. Additionally, it will assess challenges, findings derived from assessments, scenario testing, modelling, and forthcoming targets/ objectives/ initiatives crafted in response to identified issues.

- The plan will include an actionable strategy; detailing steps to be taken, provisions for ongoing monitoring and evaluation to ensure efficacy and adaptability, and suggestions on new and innovative ways of encouraging individuals to travel sustainably.
- A community concierge will be provided for the site. The function of the community concierge includes those of the traditional Travel Plan Co-ordinator with additional duties such as PTP and offering an active role in bike sharing, car clubs and carpooling.

**Important things to consider at this stage include:**

- Triggers for infrastructure delivery.
- When the public transport service commences operation.
- Frequency of traffic surveys.
- Time frame for delivery of full site – mitigation to be linked to the delivery time frame.

## Stage 4: Monitoring and Review

***Objective:*** *Establish a framework for ongoing monitoring and review to ensure the transport measures are effective and adapt as necessary.*

*Finally, a framework for ongoing monitoring and review should be established. This ensures that the transport solutions remain effective over time and can be adjusted as needed based on actual performance and changing conditions.*

To ensure ongoing monitoring and review of the development, the measures below outline how the Developer will ensure the transport infrastructure at the development site remains effective and responsive to changing needs and conditions.

**Traffic Surveys and Data Collection**

- Agreement is made with LHA on periodic traffic counts and surveys to assess traffic flow and congestion.
- Use of technology such as traffic cameras and sensors to collect real-time data is proposed.

**Establishment of a Transport Monitoring Committee**

- The developer commits to regular meetings with stakeholders, including local authorities and community representatives.
- Data will be gathered using technology, with review of transport data by Transport Consultant/Travel Plan Coordinator and gathering feedback from residents.

**Implementation of a Travel Plan**

- Promotion of sustainable travel options such as walking, cycling, and public transport is put forward by Developer. This is primarily through a travel pack and the mobility hub, which is managed and owned as appropriate. Stakeholders have the option of utilising the space to promote travel, and there is a plan for the long-term ownership and management of the building.
- Regular updates to the travel plan are proposed based on monitoring results, to be submitted to and reviewed by LHA.
    - The delivery of phases is tied to modal split by Planning Condition, and the developer has agreed to a travel plan support fund to provide further works if this is not achieved.

**Public Transport Integration**

- There is coordination with local public transport providers to ensure adequate service levels.
- Agreement on monitoring of public transport usage and adjustments to schedules/routes as needed.

**Infrastructure Audits**

- There is an ongoing annual audit of existing road safety measures, signage, and pedestrian/cyclist facilities, with identification and rectification of any issues or deficiencies, up to the point of adoption of the highways by the Local Highway Authority.

**Community Feedback Mechanisms**

- There is the establishment of channels for residents to report transport-related issues and plans for regular surveys and public consultations to gather community input.

**Environmental Impact Assessments**

- Continuous monitoring of air quality and noise levels are agreed.
- Implementation of additional mitigation measures will be considered if required.

**Reporting and Accountability**

- Regular publication of monitoring reports and updates will be undertaken and provided to all stakeholders.
- Transparent communication of findings is set out and actions are taken to address issues.
- All agreements are secured via legal agreement or Planning Condition.

*At this stage, the Transport Evidence is submitted, and once all other matters are dealt with, the proposal goes to Planning Committee.*

***All aspects of the Transport Assessment, including Stages 3 and 4, will be followed as the permission is implemented.***