

## Appendix B WSTM4 Forecasting Approach



Wokingham Borough Council

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# WOKINGHAM STRATEGIC TRANSPORT MODEL 4 (WSTM4)

Highway Model Forecasting Methodology







Wokingham Borough Council

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# **WOKINGHAM STRATEGIC TRANSPORT MODEL 4 (WSTM4)**

Highway Model Forecasting Methodology

**TYPE OF DOCUMENT (VERSION) INTERNAL**

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# 1 INTRODUCTION

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- 1.1.1. In 2008 WSP was appointed as the Highways and Transport Term consultant for Wokingham Borough Council (WBC). This included the use and on-going maintenance of the Wokingham Strategic Transport Model (WSTM) to support transport policies and scheme development.
- 1.1.2. Since this appointment WSP has completed three model updates as follows:
- WSTM2 – Update of Highway model forecast scenarios in SATURN to include details of Strategic Development Locations and mitigation measures;
  - WSTM3 – Update to a 2010 model base year with the Highway model in SATURN, Public Transport model in VISUM and Variable Demand Model in DIADEM; and
  - WSTM4 – Update to a 2015 base year with Highway model, Public Transport model and Variable Demand Model all developed in VISUM.
- 1.1.3. The base year of the WSTM4 is 2015, and models have been developed to represent an average weekday AM peak hour (08:00 - 09:00), Inter peak hour (average 10:00 – 16:00) and PM peak hour (17:00 - 18:00).
- 1.1.4. The model development followed the guidance provided in the Department for Transport's WebTAG (Web-based Transport Analysis Guidance), and is fully described within the following documents:
- WSTM4. Data Collection Report, February 2017;
  - WSTM4. Local Model Validation Report, March 2017; and
  - WSTM4. Local Model Validation Report, May 2018<sup>1</sup>.
- 1.1.5. An initial 2026 highway forecast scenario was prepared using assumptions agreed in May 2017. The approach to developing the models and the forecasting results are reported in the “Wokingham Strategic Transport Model 4 (WSTM4) Highway Model Forecasting Report” (July 2018).
- 1.1.6. Since then a number of changes have been made to the infrastructure planned within Wokingham, in particular in the borough's four Strategic Development Locations (SDLs). WSP has been commissioned to update the 2026 forecast scenarios to reflect the new development projections in the borough. Furthermore an interim 2021 forecast scenario, and a 2036 forecast scenario will be developed.
- 1.1.7. The report describes the approach proposed to develop the forecast models and states the assumptions which will be made. The report is structured as follows:
- Chapter 2 discusses the forecast demand;
  - Chapter 3 describes the forecast networks; and
  - Chapter 4 summarises the report.
- 1.1.8. The details of the next Local Plan for the period between 2026 and 2036 are being worked on. Until these are confirmed, the assumption will be made that there are no changes in the infrastructure provision beyond 2026. The growth in travel demand between 2026 and 2036 will be taken into account through applying national traffic forecast projections accessible via DfT's NTEM (National Trip End Model).
- 1.1.9. The WSTM4 is a multi-modal model consisting of Highway, Public Transport and Variable Demand Models. This report focuses on the development of the highway forecast scenarios (AM and PM only), which are used to inform infrastructure scheme delivery in the borough.
- 1.1.10. The forecast model development will follow recommendation given in DfT's TAG Unit M4 (May 2018).

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<sup>1</sup>The WSTM4. Local Model Validation Report, May 2018 provides an update to the March 2017 LMVR and describes the revalidation of the WSTM4 in VISUM 17 (highway only).

## 2 FORECAST DEMAND

### 2.1 INTRODUCTION

2.1.1. The matrices will be developed using a number of data sources, including:

- National Trip End Model (NTEM) forecasts;
- DfT fuel and income adjustments;
- National Road Traffic Forecasts;
- TRICS trip rates; and
- Information on significant developments.

2.1.2. Figure 1 shows the process for the production of the forecast demand matrices.

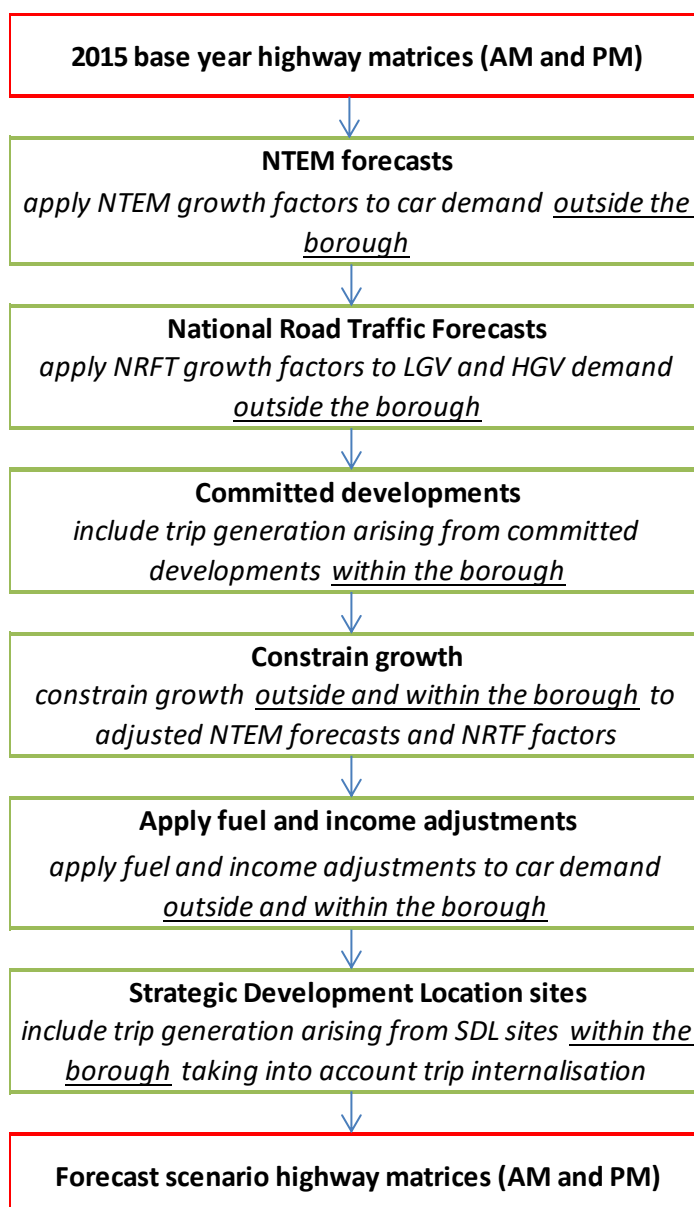


Figure 1 – Forecast matrix development process

## 2.2 NTEM FORECASTS

- 2.2.1. Planned development outside Wokingham borough will be accounted for in the model through the use of national projections.
- 2.2.2. Car growth will be obtained from TEMPRO version 7.2, a software tool that provides projections of growth over time based on outputs from the National Trip End Model (NTEM). NTEM takes into account changes in population, employment, car ownership and trip rates to forecast the growth in trip origins and destinations. It assumes trip costs at base year levels, and it does not allow for changes in travel times, perceived value of time, cost of fuel, and other car operating costs.
- 2.2.3. NTEM version 7.2 datasets were published on 1 March 2017 and will be the latest available set of forecasts at the time the forecast models will be undertaken and completed. 2026 planning projections included within TEMPRO v7.2 for the Local Authorities adjacent to Wokingham borough are reproduced in Table 1.

**Table 1 - TEMPRO v7.2 planning projections**

| Locality               | HHs    |        |                  | Jobs    |         |                  |
|------------------------|--------|--------|------------------|---------|---------|------------------|
|                        | 2015   | 2026   | 2015-2026 Growth | 2015    | 2026    | 2015-2026 Growth |
| Bracknell Forest       | 48,010 | 52,734 | 4,724            | 69,399  | 73,841  | 4,442            |
| Hart                   | 37,821 | 40,026 | 2,205            | 46,583  | 49,331  | 2,748            |
| Basingstoke and Deane  | 72,570 | 84,880 | 12,310           | 97,148  | 102,453 | 5,305            |
| West Berkshire         | 65,089 | 72,601 | 7,512            | 101,807 | 108,439 | 6,632            |
| Reading                | 66,112 | 75,116 | 9,004            | 103,775 | 110,569 | 6,794            |
| South Oxfordshire      | 57,582 | 66,619 | 9,037            | 70,807  | 74,538  | 3,731            |
| Wycombe                | 70,570 | 78,054 | 7,484            | 93,406  | 98,561  | 5,155            |
| Windsor and Maidenhead | 60,339 | 64,672 | 4,333            | 88,877  | 94,693  | 5,816            |

- 2.2.4. Information regarding residential and employment commitments within West Berkshire between 2016 and 2026 was obtained from West Berkshire Council and compared to TEMPRO v7.2 planning projections. The West Berkshire employment commitments were provided in terms of net floor space, so conversion factors from the “Homes and Communities Agency Employment Density Guide 3<sup>rd</sup> Edition” (November 2015) were used to calculate the number of jobs.
- 2.2.5. A comparison between residential and employment commitments provided by West Berkshire Council and TEMPRO v7.2 planning projections is presented in Table 2.

**Table 2 - West Berkshire Council commitments and TEMPRO v7.2 planning projections**

| Source                 | Households (2016 – 2026) | Jobs (2016 – 2026) |
|------------------------|--------------------------|--------------------|
| West Berkshire Council | 5,209                    | 2,014              |
| TEMPRO v7.2            | 6,853                    | 4,662              |

- 2.2.6. TEMPRO v7.2 planning projections predict higher growth in households and jobs between 2016 and 2026 than West Berkshire Council trajectories, and therefore provide a robust basis for growth outside Wokingham borough.

## 2.3 NATIONAL ROAD TRAFFIC FORECASTS

Growth for Light Goods Vehicles (LGV) and Heavy Goods Vehicles (HGV) will be obtained from the National Road Traffic Forecasts (NRTF) published by the DfT (July 2018). These growth rates will be applied to each region depending on the WSTM4 zone locations. The regional growth factors are shown in Table 3.

**Table 3 – National Road Traffic Forecast growth factors**

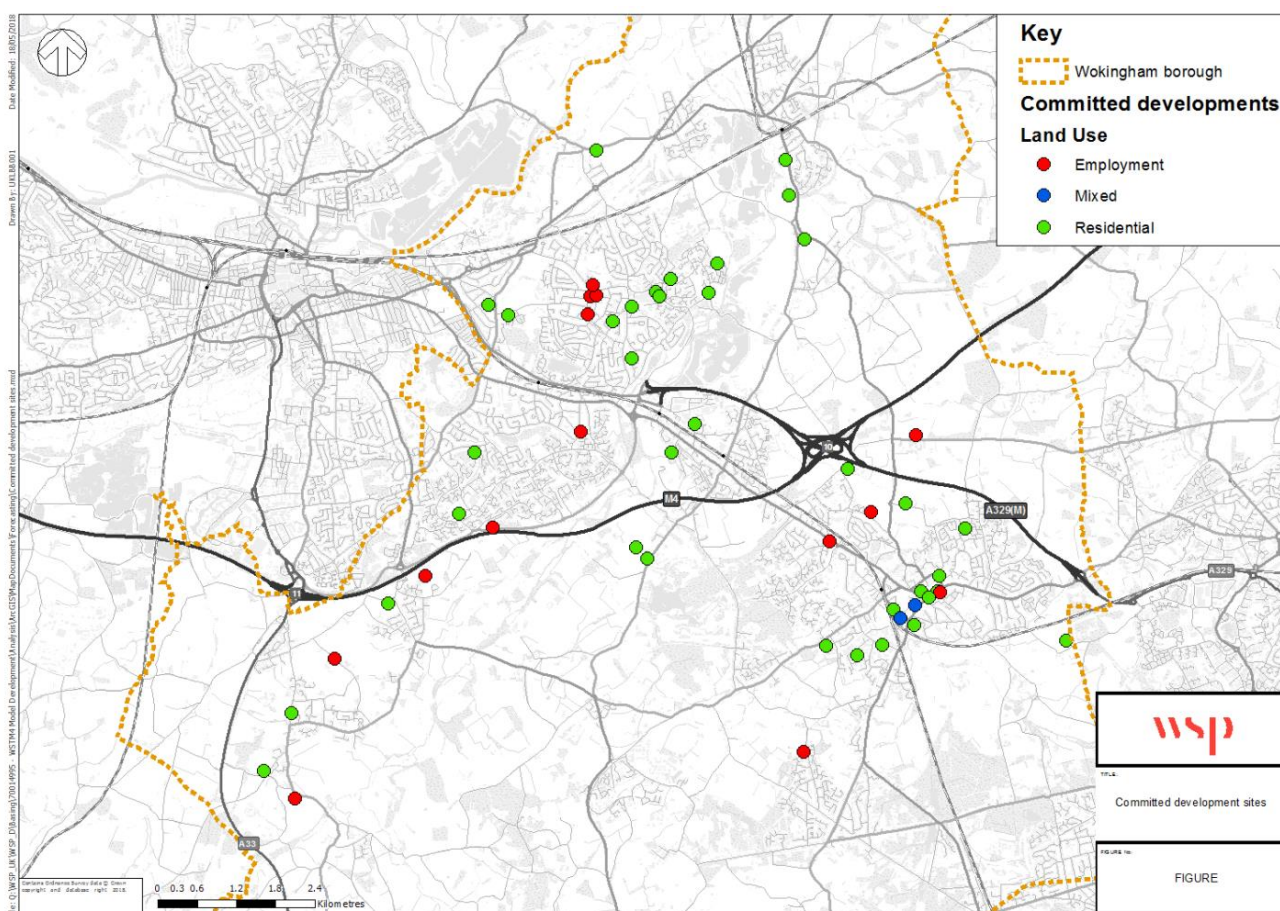
| Region                                       | LGV Growth | HGV Growth |
|--|------------|------------|
| South East                                   | 17.42%     | 3.72%      |
| North West/West Midlands                     | 17.60%     | -0.89%     |
| East Midlands/North East/ Yorkshire & Humber | 17.59%     | -1.10%     |
| East   | 16.13%     | 3.55%      |
| London                                       | 20.63%     | -1.70%     |
| South West                                   | 15.20%     | -1.47%     |
| Wales  | 16.70%     | -1.04%     |

## 2.4 COMMITTED DEVELOPMENT

- 2.4.1. NTEM forecasts do not take account of the detailed geographical location of development sites. Instead information on housing and employment committed developments, which has been provided by WBC, will be used to quantify growth within the borough.
- 2.4.2. The committed developments in Wokingham borough between 2015 and 2026 are broken down by development classification in Table 4, and are displayed graphically in Figure 2.

**Table 4 - Housing and employment committed developments 2015 - 2026**

|                              | Committed Development |
|------------------------------|-----------------------|
| Housing (dwellings)          | 2,886                 |
| Employment (m <sup>2</sup> ) | 29,621                |



**Figure 2 – Housing and employment committed developments 2015 – 2026**

- 2.4.3. The full list of committed developments in Wokingham borough is provided in Appendix A. Negative values for the development quantum indicate a change in land use. For example, part of 6 Library Parade in Woodley is being redeveloped from a Gymnasium (use Class D2) to office space (use class B1).
- 2.4.4. It has been assumed that all the committed developments will be completed by 2021, the first forecast year.
- 2.4.5. To calculate the trip generation arising from the committed developments within Wokingham borough, trip rates will be applied to the development quantum for each site.
- 2.4.6. The trip rates have been determined from a selection of representative sites in the TRICS trip generation database. TRICS is the UK and Ireland's national system of trip generation analysis, containing over 7,150 directional transport surveys at over 110 types of development. Sites were generally selected based on the following criteria:
- Regions: South East (excluding Greater London), South West, East Anglia;
  - Dates: since June 2013;
  - Survey days: Monday, Tuesday, Wednesday, Thursday;
  - Survey types: manual count, directional ATC count; and
  - Locations: edge of town centre, suburban area, edge of town.
- 2.4.7. In instances where this did not generate a suitable range of sites, one or more of the above criteria was relaxed. For example, in the last five years no cinema sites were surveyed on the above weekdays, so survey data from a Friday was used.
- 2.4.8. The car and LGV trips rates for each land use class are provided in Table 5, and the HGV trip rates for each land use class are provided in Table 6. The number of sites used to calculate the trip rates for each development type are also shown.

**Table 5 – Car and LGV trip rates, vehicles**

|    | Development Type                                    | Number of Sites | AM Peak Hour (0800-0900) |           |       | Av. Inter Peak Hour (1000-1600) |           |       | PM Peak Hour (1700-1800) |           |       |
|----|---|-----------------|--------------------------|-----------|-------|---------------------------------|-----------|-------|--------------------------|-----------|-------|
|    |   |                 | Arrival                  | Departure | Total | Arrival                         | Departure | Total | Arrival                  | Departure | Total |
| 1  | Food Retail (A1) per 100sqm                         | 1               | 2.64                     | 2.14      | 4.77  | 6.33                            | 6.09      | 12.43 | 6.23                     | 6.89      | 13.11 |
| 2  | Non Food Retail (A1) per 100sqm                     | 3               | 0.20                     | 0.04      | 0.25  | 2.56                            | 2.51      | 5.07  | 1.57                     | 1.62      | 3.19  |
| 3  | Financial and Professional Services (A2) per 100sqm | 10              | 2.20                     | 0.19      | 2.39  | 0.42                            | 0.57      | 0.99  | 0.23                     | 1.98      | 2.22  |
| 4  | Restaurant & Café (A3) per 100sqm                   | 2               | 0.00                     | 0.00      | 0.00  | 1.68                            | 1.51      | 3.20  | 2.68                     | 0.83      | 3.51  |
| 5  | Business (B1) per 100sqm                            | 5               | 1.53                     | 0.16      | 1.69  | 0.30                            | 0.33      | 0.64  | 0.17                     | 1.30      | 1.46  |
| 6  | General Industry (B2) per 100sqm                    | 6               | 0.51                     | 0.19      | 0.70  | 0.22                            | 0.24      | 0.46  | 0.10                     | 0.49      | 0.59  |
| 7  | Storage or Distribution (B8) per 100sqm             | 3               | 0.07                     | 0.06      | 0.13  | 0.09                            | 0.10      | 0.19  | 0.04                     | 0.09      | 0.14  |
| 8  | Hotels (C1) per bed                                 | 4               | 0.33                     | 0.91      | 1.24  | 0.27                            | 0.30      | 0.57  | 0.59                     | 0.28      | 0.86  |
| 9  | Dwelling Houses (C3) per unit                       | 13              | 0.17                     | 0.41      | 0.58  | 0.18                            | 0.18      | 0.36  | 0.36                     | 0.16      | 0.51  |
| 10 | Dwelling Flats (C3) per unit                        | 8               | 0.06                     | 0.18      | 0.25  | 0.11                            | 0.11      | 0.22  | 0.19                     | 0.10      | 0.29  |
| 11 | Non-Residential Institutions (D1) per 100sqm        | 5               | 6.75                     | 3.60      | 10.36 | 5.22                            | 5.26      | 10.48 | 3.47                     | 4.64      | 8.11  |
| 12 | Primary School (D1) per pupil                       | 2               | 0.70                     | 0.58      | 1.28  | 0.10                            | 0.10      | 0.20  | 0.04                     | 0.08      | 0.11  |
| 13 | Secondary School (D1) per pupil                     | 4               | 0.11                     | 0.08      | 0.19  | 0.02                            | 0.03      | 0.05  | 0.02                     | 0.03      | 0.05  |
| 14 | Leisure Centre (D2) per 100sqm                      | 3               | 0.25                     | 0.27      | 0.52  | 0.35                            | 0.31      | 0.66  | 1.01                     | 0.70      | 1.71  |
| 15 | Cinema (D2) per 100sqm                              | 2               | 0.00                     | 0.00      | 0.00  | 1.11                            | 0.77      | 1.89  | 1.10                     | 1.04      | 2.14  |
| 16 | Sports Hub (D2) per pitch                           | 1               | 1.30                     | 0.70      | 2.00  | 0.58                            | 0.62      | 1.20  | 2.30                     | 0.80      | 3.10  |

**Table 6 – HGV trip rates, vehicles**

|    | Development Type                                    | Number of Sites | AM Peak Hour (0800-0900) |           |       | Av. Inter Peak Hour (1000-1600) |           |       | PM Peak Hour (1700-1800) |           |       |
|----|---|-----------------|--------------------------|-----------|-------|---------------------------------|-----------|-------|--------------------------|-----------|-------|
|    |   |                 | Arrival                  | Departure | Total | Arrival                         | Departure | Total | Arrival                  | Departure | Total |
| 1  | Food Retail (A1) per 100sqm                         | 1               | 0.02                     | 0.06      | 0.08  | 0.04                            | 0.03      | 0.06  | 0.01                     | 0.02      | 0.03  |
| 2  | Non Food Retail (A1) per 100sqm                     | 3               | 0.00                     | 0.00      | 0.00  | 0.00                            | 0.00      | 0.00  | 0.00                     | 0.00      | 0.00  |
| 3  | Financial and Professional Services (A2) per 100sqm | 10              | 0.01                     | 0.01      | 0.01  | 0.00                            | 0.03      | 0.03  | 0.00                     | 0.00      | 0.00  |
| 4  | Restaurant & Café (A3) per 100sqm                   | 2               | 0.00                     | 0.00      | 0.00  | 0.00                            | 0.00      | 0.00  | 0.00                     | 0.00      | 0.00  |
| 5  | Business (B1) per 100sqm                            | 5               | 0.02                     | 0.01      | 0.03  | 0.01                            | 0.03      | 0.04  | 0.00                     | 0.00      | 0.01  |
| 6  | General Industry (B2) per 100sqm                    | 6               | 0.02                     | 0.01      | 0.03  | 0.02                            | 0.03      | 0.04  | 0.01                     | 0.01      | 0.01  |
| 7  | Storage or Distribution (B8) per 100sqm             | 3               | 0.01                     | 0.01      | 0.03  | 0.02                            | 0.03      | 0.05  | 0.02                     | 0.01      | 0.03  |
| 8  | Hotels (C1) per bed                                 | 4               | 0.01                     | 0.01      | 0.02  | 0.01                            | 0.01      | 0.02  | 0.00                     | 0.00      | 0.00  |
| 9  | Dwelling Houses (C3) per unit                       | 13              | 0.00                     | 0.00      | 0.00  | 0.00                            | 0.00      | 0.00  | 0.00                     | 0.00      | 0.00  |
| 10 | Dwelling Flats (C3) per unit                        | 8               | 0.00                     | 0.00      | 0.00  | 0.00                            | 0.00      | 0.00  | 0.00                     | 0.00      | 0.00  |
| 11 | Non-Residential Institutions (D1) per 100sqm        | 5               | 0.00                     | 0.00      | 0.00  | 0.02                            | 0.02      | 0.05  | 0.00                     | 0.00      | 0.00  |
| 12 | Primary School (D1) per pupil                       | 2               | 0.00                     | 0.00      | 0.00  | 0.00                            | 0.00      | 0.00  | 0.00                     | 0.00      | 0.00  |
| 13 | Secondary School (D1) per pupil                     | 4               | 0.00                     | 0.00      | 0.00  | 0.00                            | 0.00      | 0.00  | 0.00                     | 0.00      | 0.00  |
| 14 | Leisure Centre (D2) per 100sqm                      | 3               | 0.01                     | 0.01      | 0.02  | 0.00                            | 0.00      | 0.00  | 0.00                     | 0.00      | 0.00  |
| 15 | Cinema (D2) per 100sqm                              | 2               | 0.00                     | 0.00      | 0.00  | 0.00                            | 0.00      | 0.01  | 0.00                     | 0.00      | 0.00  |
| 16 | Sports Hub (D2) per pitch                           | 1               | 0.10                     | 0.10      | 0.20  | 0.00                            | 0.00      | 0.00  | 0.00                     | 0.00      | 0.00  |

2.4.9. The resulting car and LGV trip generation will be divided between the four user classes (car commute, car business, car other, LGV) using the proportions from the base year matrix totals, which are shown in Table 7 below.

**Table 7 – Car and LGV proportions**

| Time Period | Car Commuting | Car Business | Car Other | LGV |
|-------------|---------------|--------------|-----------|-----|
| AM peak     | 66%           | 7%           | 17%       | 10% |
| Inter-peak  | 28%           | 8%           | 46%       | 18% |
| PM peak     | 43%           | 7%           | 39%       | 11% |

2.4.10. The trip generation arising from the committed developments will be used to calculate the growth forecast for each existing base year zone.

2.4.11. A number of committed developments which exceed a certain threshold (150 dwellings) will be modelled explicitly. The explicitly modelled committed developments are listed in Table 8 below.

**Table 8 – Explicitly modelled committed developments**

| Development                  | Size          |
|------------------------------|---------------|
| Hatch Farm Dairies, Winnersh | 431 dwellings |
| Sandford Farm, Woodley       | 468 dwellings |
| Bigwood House, Waterloo Road | 200 dwellings |

2.4.12. Mixed use developments at Elms Field and The Paddocks and Carnival Pool will also be modelled explicitly due to their strategic position.

2.4.13. The distribution for the explicitly modelled committed developments will be based on the distribution of existing neighbouring zones with similar land uses.

## 2.5 CONSTRAIN GROWTH

2.5.1. The overall growth outside and within Wokingham borough will then be constrained to NTEM forecasts and NRTF factors. The 'Alternative Planning Assumptions' facility within TEMPRO will be used to ensure forecasts are consistent with Wokingham trajectories.

## 2.6 FUEL AND INCOME ADJUSTMENTS

2.6.1. To account for the effect of changes in fuel and income on car trips, fuel and income adjustments will be applied using the DfT's TAG Databook, June 2018 release v1.10.1, the latest version available at the time of model development. The factors are shown in Table 9. The resultant growth is presented in Table 10.

**Table 9 - Fuel and income adjustment factors**

| Adjustment | 2015  | 2021  | 2026  | 2036  |
|------------|-------|-------|-------|-------|
| Fuel       | 1.053 | 1.086 | 1.092 | 1.098 |
| Income     | 1.012 | 1.019 | 1.027 | 1.052 |

**Table 10 – Growth arising from the application of Fuel and income adjustment factors**

| Growth   | 2015/21 | 2015/26 | 2015/36 |
|----------|---------|---------|---------|
| Fuel     | 3.1%    | 3.6%    | 4.2%    |
| Income   | 0.8%    | 1.5%    | 3.9%    |
| Combined | 3.9%    | 5.2%    | 8.3%    |

## 2.7 SDL DEVELOPMENT

- 2.7.1. In addition to the committed developments within the borough, the demand arising from the Strategic Development Location sites (Arborfield Garrison, North Wokingham, South Wokingham, South of the M4) will be considered.
- 2.7.2. The total housing and employment quantum which will be included in the forecast scenarios for each SDL is summarised in Table 11. The location and size of the individual sites is continuously updated, and the model will include the latest assumptions available at the time.

**Table 11 – SDL development quantum, 2010 - 2026**

|                                      | SDL                 |                 |                 |                 |
|--------------------------------------|---------------------|-----------------|-----------------|-----------------|
|                                      | Arborfield Garrison | South Wokingham | North Wokingham | South of the M4 |
| Housing, dwellings                   | 3,500               | 2,532           | 1,877           | 3,157           |
| Employment, m <sup>2</sup>           | 16,000              | 10,800          | 24,756          | 63,594          |
| School, pupils                       | 1,840               | 840             | 420             | 740             |
| Assembly and leisure, m <sup>2</sup> | -                   | 230,000         | -               | -               |

- 2.7.3. The SDL sites will be modelled explicitly. The trip rates shown in Table 5 and Table 6 will be used to calculate the trip generation for each site, and the proportions shown in Table 7 will be used to split the car and LGV trip generation into the separate user classes.
- 2.7.4. The distribution for SDL sites will generally be based on the distribution of existing neighbouring zones with similar land uses.
- 2.7.5. The provision of schools, commercial centres and leisure facilities within the SDLs will lead to some internalisation of trips. It has been assumed that the schools in each SDL will attract 39% of all education trips from that SDL. This is consistent with the internal/ external split of education trips calculated in the Arborfield Garrison SDL Transport Assessment (September 2014).
- 2.7.6. It is assumed that commercial and leisure developments within SDLs will attract 5% of trips from that SDL. Although the Arborfield Garrison SDL Transport Assessment (September 2014) assumes 20% of leisure trips

will be internal, it has been agreed with WBC that a lower percentage will be used to ensure a worst-case scenario is assessed.

- 2.7.7. 2011 Census Journey to Work data for the employment area nearest to Thames Valley Science Park, which includes the Amec Foster Wheeler site, indicates that 1% of trips are from neighbouring areas. Since there are few major employment sites being proposed in the SDLs, and to ensure a worst-case scenario is assessed, no internalisation of trips will be assumed for employment sites.
- 2.7.8. Unlike the WSTM3 forecast scenarios, no allowance will be made for reduced demand due to 'Smarter Choices' and 'Demand Management' policies. This is to ensure that a worst-case scenario is assessed.

## 3 FORECAST NETWORK

### 3.1 COMMITTED SCHEMES

3.1.1. The following committed network improvement schemes will be included in the forecast scenarios:

- M4 Smart Motorway (junctions 3 – 12):  
*“This scheme will use the latest technology to improve journeys by monitoring traffic flow and setting speed limits accordingly. This helps to keep traffic moving smoothly, instead of continually stopping and starting. Information about road conditions and speed limits will be displayed to drivers on electronic road signs. The proposal also involves converting the hard shoulder permanently to a traffic lane. This will create much needed extra capacity necessary to support economic growth. The conversion of the hard shoulder will be continuous through junctions unless there is an operational reason not to do so. It is proposed that the new lane created from the hard shoulder would continue through junctions 4, 5, 6, 7, 8/9 and 11. It is not proposed for junctions 3 and 12 or at junctions 4b and 10, as these are motorway to motorway links. To enable the provision of a smart motorway along the whole length of the proposed scheme, it will be necessary to widen or replace a number of bridges where there is currently no hard shoulder.”*  
 (Source: Highways England <https://highwaysengland.co.uk/projects/m4-junctions-3-12-smart-motorway/>)
- Elms Road Link Road:  
*“Provision of a new road to link Wellington Road and Shute End, as part of the regeneration of Wokingham Town Centre.”*  
 (Source: Wokingham Borough Council  
<http://planning.wokingham.gov.uk/FastWebPL/detail.asp?AltRef=153125&ApplicationNumber=&AddressPrefix=&Postcode=&KeywordSearch=elms+road&Submit=Search>)
- Winnersh Relief Road Phase 1:  
*A Link road including new junctions with King Street Lane and Lower Earley Way*  
 (Source: Wokingham Borough Council  
<http://planning.wokingham.gov.uk/FastWebPL/detail.asp?AltRef=060468&ApplicationNumber=&AddressPrefix=&Postcode=&KeywordSearch=winnersh+relief+road&Submit=Search>)
- Winnersh Relief Road Phase 2:  
*A link road connecting B3030 King Street Lane / Winnersh Relief Road Phase 1 to the A329 Reading Road*  
 (Source: Wokingham Borough Council  
<https://planning.wokingham.gov.uk/FastWebPL/detail.asp?AltRef=180760&ApplicationNumber=&AddressPrefix=&Postcode=&KeywordSearch=winnersh+relief+road&Submit=Search>)

### 3.2 SDL SCHEMES

3.2.1. A number of planned infrastructure improvements to support SDL growth will also be accounted for in the forecast scenarios, including the following key schemes:

- Arborfield Cross Relief Road (ACRR);
- North Wokingham Distributor Road (NWDR);
- South Wokingham Distributor Road (SWDR); and
- Shinfield Eastern Relief Road (SERR).

3.2.2. These improvements are continuously updated, and the model will include the latest assumptions available at the time.

3.2.3. A number of signalised junctions will be introduced as part of the highway improvement schemes. In the instances where these signalised junctions have been assessed in LinSig, the LinSig signal timings will be adopted in the WSTM4. In all other cases assumptions will be made for the cycle time and phasing, and the green time allocated to each movement will be optimised within VISUM.

## 4 SUMMARY

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- 4.1.1. In 2008 WSP was appointed as the Highways and Transport Term consultant for Wokingham Borough Council (WBC). This included the use and on-going maintenance of the Wokingham Strategic Transport Model (WSTM) to support transport policies and scheme development.
- 4.1.2. Since this appointment WSP has completed three model updates as follows:
- WSTM2 – Update of Highway model forecast scenarios in SATURN to include details of Strategic Development Locations and mitigation measures;
  - WSTM3 – Update to a 2010 model base year with the Highway model in SATURN, Public Transport model in VISUM and Variable Demand Model in DIADEM; and
  - WSTM4 – Update to a 2015 base year with Highway model, Public Transport model and Variable Demand Model all developed in VISUM.
- 4.1.3. The existing 2026 highway forecast scenario will be updated to reflect the new development projections in the borough. Furthermore an interim 2021 forecast scenario, and a 2036 forecast scenario will be developed. The approach followed will be consistent with the DfT's TAG guidance for developing traffic model forecasts.
- 4.1.4. NTEM version 7.2 datasets and National Road Traffic Forecasts will be used to calculate car and LGV/ HGV growth outside of Wokingham borough. TRICS trip rates will be used to calculate the trip generation for committed developments within the borough.
- 4.1.5. Growth outside and within the borough will then be constrained to TEMPRO forecasts and National Road Traffic Forecasts. Fuel and income adjustment factors will then be applied.
- 4.1.6. TRICS trip rates will be used to calculate the trip generation arising from SDL development within the borough. The trip distribution for SDL sites will generally be based on the trip distribution of neighbouring sites with similar land uses. The trip distribution will then be adjusted to account for trip internalisation within SLDs.
- 4.1.7. The forecast networks will include committed infrastructure schemes inside and outside the borough such as M4 Smart Motorway and Elms Road Link Road. A number of planned infrastructure improvements to support SDL growth, for example ACRR, NWDR, SWDR and SERR will also be included.
- 4.1.8. The 2021, 2026 and 2036 forecast scenarios will provide a common basis for the assessment of highway infrastructure schemes and development in the borough.

# Appendix A

**COMMITTED DEVELOPMENTS**



| Address  | Land Use    | Class              | Unit      | Size | Explicitly Modelled? |
|--|-------------|--------------------|-----------|------|----------------------|
| Norton Road, Wokingham   | Residential | C3, Dwelling       | Dwellings | 9    | 0                    |
| 7-9 Wiltshire Road,  | Residential | C3, Dwelling       | Dwellings | 31   | 0                    |
| 43 Crockhamwell Road, Woodley,                                   | Employment  | A2                 | sqm       | 88   | 0                    |
| Lambs Farm Business Park Basingstoke Road Swallowfield Berkshire | Employment  | B1                 | sqm       | 225  | 0                    |
| Lambs Farm Business Park Basingstoke Road Swallowfield Berkshire | Employment  | B8                 | sqm       | 225  | 0                    |
| 7 Headley Road Woodley   | Employment  | A2                 | sqm       | -246 | 0                    |
| 78 Meadow Road Earley  | Employment  | B1                 | sqm       | -55  | 0                    |
| 6 First Floor Library Parade Crockhamwell Road                   | Employment  | D2, Leisure Centre | sqm       | -100 | 0                    |
| 6 First Floor Library Parade Crockhamwell Road                   | Employment  | B1                 | sqm       | 100  | 0                    |
| Unit N Basingstoke Road Spencers Wood Reading Berkshire          | Employment  | B1                 | sqm       | 70   | 0                    |
| Unit N Basingstoke Road Spencers Wood Reading Berkshire          | Employment  | B8                 | sqm       | 70   | 0                    |
| Land r/o 328 - 348 Barkham Rd, Barkham Hill,                     | Residential | C3, Dwelling       | Dwellings | 10   | 0                    |
| 51 Peach Street Wokingham Berkshire                              | Employment  | C3, Dwelling       | Dwellings | 4    | 0                    |
| Cyber House 2, Molly Millars Lane, Wokingham                     | Residential | C3, Dwelling       | Dwellings | 65   | 0                    |
| 134-146 London Road Twyford                                      | Residential | C3, Dwelling       | Dwellings | 31   | 0                    |
| Rosa Building, Mulberry Business Park, Wokingham                 | Residential | C3, Dwelling       | Dwellings | 33   | 0                    |
| Ilex House, Fishponds Road, Wokingham                            | Residential | C3, Dwelling       | Dwellings | 45   | 0                    |
| Hewden Plant Hire Old Forest Road Wokingham                      | Residential | C3, Dwelling       | Dwellings | 43   | 0                    |
| Crown House Toutley Industrial Estate, Wokingham                 | Residential | C3, Dwelling       | Dwellings | 22   | 0                    |
| Kronos House Finchampstead Road Wokingham                        | Residential | C3, Dwelling       | Dwellings | 31   | 0                    |
| Mays Farm Hyde End Road Shinfield                                | Employment  | B8                 | sqm       | 217  | 0                    |
| 15-27 High Street, Wargrave,                                     | Residential | C3, Dwelling       | Dwellings | 10   | 0                    |
| 7-9 Shute End Wokingham  | Residential | C3, Dwelling       | Dwellings | 10   | 0                    |
| 12 Oaklands Business Centre, Oaklands Park Wokingham             | Residential | C3, Dwelling       | Dwellings | 18   | 0                    |
| Loddon Vale House, Hurricane Way, Woodley                        | Residential | C3, Dwelling       | Dwellings | 10   | 0                    |
| 498 Reading Road Winnersh Berkshire                              | Residential | C3, Dwelling       | Dwellings | 8    | 0                    |
| Baileys House Central Walk Wokingham                             | Residential | C3, Dwelling       | Dwellings | 8    | 0                    |
| 81-109 Crockhamwell Road Woodley                                 | Residential | C3, Dwelling       | Dwellings | 8    | 0                    |
| Quoin House Fishponds Road                                       | Residential | C3, Dwelling       | Dwellings | 23   | 0                    |
| Valley Nurseries Whistley Green Hurst                            | Residential | C3, Dwelling       | Dwellings | 16   | 0                    |

|   |             |                    |           |       |   |
|---|-------------|--------------------|-----------|-------|---|
| 151 Land South Of Nash Grove Lane Finchampstead               | Employment  | B8                 | sqm       | -206  | 0 |
| Eustace Crescent (now Phoenix Ave), Wokingham                 | Residential | C3, Dwelling       | Dwellings | 68    | 0 |
| Former Fosters Home for the Elderly, Fosters Lane, Woodley    | Residential | C3, Dwelling       | Dwellings | 34    | 0 |
| Baileys House, Central Walk, Wokingham                        | Residential | C3, Dwelling       | Dwellings | 10    | 0 |
| Sutton Court, Culver Lane, Earley                             | Residential | C3, Dwelling       | Dwellings | -70   | 0 |
| CCC site, Sandford Farm, Perimeter Rd, Woodley                | Residential | C3, Dwelling       | Dwellings | 73    | 0 |
| Cantley Lodge Hotel & Johnson House, Wellington Rd, Wokingham | Residential | C3, Dwelling       | Dwellings | 32    | 0 |
| Land rear of 40 Arbor Lane, Winnersh                          | Residential | C3, Dwelling       | Dwellings | 28    | 0 |
| The Corner Garage 136 Reading Road Wokingham                  | Employment  | B2                 | sqm       | 50    | 0 |
| UoR Bulmershe Campus, Woodlands Ave, (phase 2)                | Residential | C3, Dwelling       | Dwellings | 239   | 0 |
| 74-80 Peach St, Wokingham                                     | Residential | C3, Dwelling       | Dwellings | 36    | 0 |
| Viscount Way, Woodley   | Residential | C3, Dwelling       | Dwellings | 68    | 0 |
| Former Bearwood Golf Course, Mole Rd, Sindlesham              | Residential | C3, Dwelling       | Dwellings | 18    | 0 |
| 58 Hurst Road Twyford Reading RG10 0AN                        | Residential | C3, Dwelling       | Dwellings | 11    | 0 |
| Land at Market Place, Peach St & Rose St, Wokingham           | Residential | C3, Dwelling       | Dwellings | 21    | 0 |
| Harp Farm Forest Road Wokingham                               | Employment  | B8                 | sqm       | 565   | 0 |
| 3 Danehill Lower Earley Reading                               | Employment  | B1                 | sqm       | -283  | 0 |
| 3 Danehill Lower Earley Reading                               | Employment  | B2                 | sqm       | 283   | 0 |
| 81 Crockhamwell Road, Woodley,                                | Employment  | D2, Leisure Centre | sqm       | -724  | 0 |
| Land adj. The Square, Chalfont Way, Lower Earley              | Residential | C3, Dwelling       | Dwellings | 20    | 0 |
| Thames Valley Science and Innovation Park                     | Employment  | B1, TVSP           | sqm       | 16096 | 0 |
| UoR Bulmershe Campus, Woodlands Ave, (phase 1)                | Residential | C3, Dwelling       | Dwellings | 34    | 0 |
| Land at junction of Headley Road East & Spitfire Way, Woodley | Residential | C3, Dwelling       | Dwellings | 93    | 0 |
| Courtyard Offices, Sandford Farm, Perimeter Rd, Woodley       | Residential | C3, Dwelling       | Dwellings | 27    | 0 |
| Part of Former Linpac Site, Headley Rd East, Woodley          | Residential | C3, Dwelling       | Dwellings | 30    | 0 |
| Folly Court, Blagrove Lane, Wokingham                         | Residential | C3, Dwelling       | Dwellings | 100   | 0 |
| Land off Mohawk Way, Woodley                                  | Residential | C3, Dwelling       | Dwellings | 16    | 0 |
| Land west of Beech Hill Road, Spencers Wood                   | Residential | C3, Dwelling       | Dwellings | 120   | 0 |
| Marlborough House, Basingstoke Rd, Spencers Wood              | Residential | C3, Dwelling       | Dwellings | 15    | 0 |
| UoR - Sibly Hall, Redhatch Drive, Earley                      | Residential | C3, Dwelling       | Dwellings | 89    | 0 |
| Sonning Farm, Sonning   | Residential | C3, Dwelling       | Dwellings | 25    | 0 |
| Land west of Hurst Rd, Twyford                                | Residential | C3, Dwelling       | Dwellings | 8     | 0 |

|   |             |              |           |      |   |
|---|-------------|--------------|-----------|------|---|
| Wheatsheaf Close, Sindlesham                  | Residential | C3, Dwelling | Dwellings | 24   | 0 |
| Elms Field & The Paddocks, Elms Rd, Wokingham | Mixed       | A1           | sqm       | 1631 | P |
| Elms Field & The Paddocks, Elms Rd, Wokingham | Mixed       | A1-A5        | sqm       | 1735 | P |
| Elms Field & The Paddocks, Elms Rd, Wokingham | Mixed       | A1-A5        | sqm       | 548  | P |
| Elms Field & The Paddocks, Elms Rd, Wokingham | Mixed       | A1-A5        | sqm       | 365  | P |
| Elms Field & The Paddocks, Elms Rd, Wokingham | Mixed       | C1           | bed       | 95   | P |
| Elms Field & The Paddocks, Elms Rd, Wokingham | Mixed       | C3, Flats    | Dwellings | 90   | P |
| Elms Field & The Paddocks, Elms Rd, Wokingham | Mixed       | C3, Houses   | Dwellings | 36   | P |
| Elms Field & The Paddocks, Elms Rd, Wokingham | Mixed       | D2           | sqm       | 1160 | P |
| Carnival Pool, Wellington Rd, Wokingham       | Mixed       | D1           | sqm       | 1750 | P |
| Carnival Pool, Wellington Rd, Wokingham       | Mixed       | D2           | sqm       | 1750 | P |
| Carnival Pool, Wellington Rd, Wokingham       | Mixed       | A3           | sqm       | 450  | P |
| Carnival Pool, Wellington Rd, Wokingham       | Mixed       | C3, Flats    | Dwellings | 55   | P |
| Hatch Farm Dairies, Winnersh                  | Residential | C3           | Dwellings | 433  | P |
| Sandford Farm, Woodley                        | Residential | C3           | Dwellings | 468  | P |
| Bigwood House, Waterloo Rd                    | Residential | C3           | Dwellings | 200  | P |



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