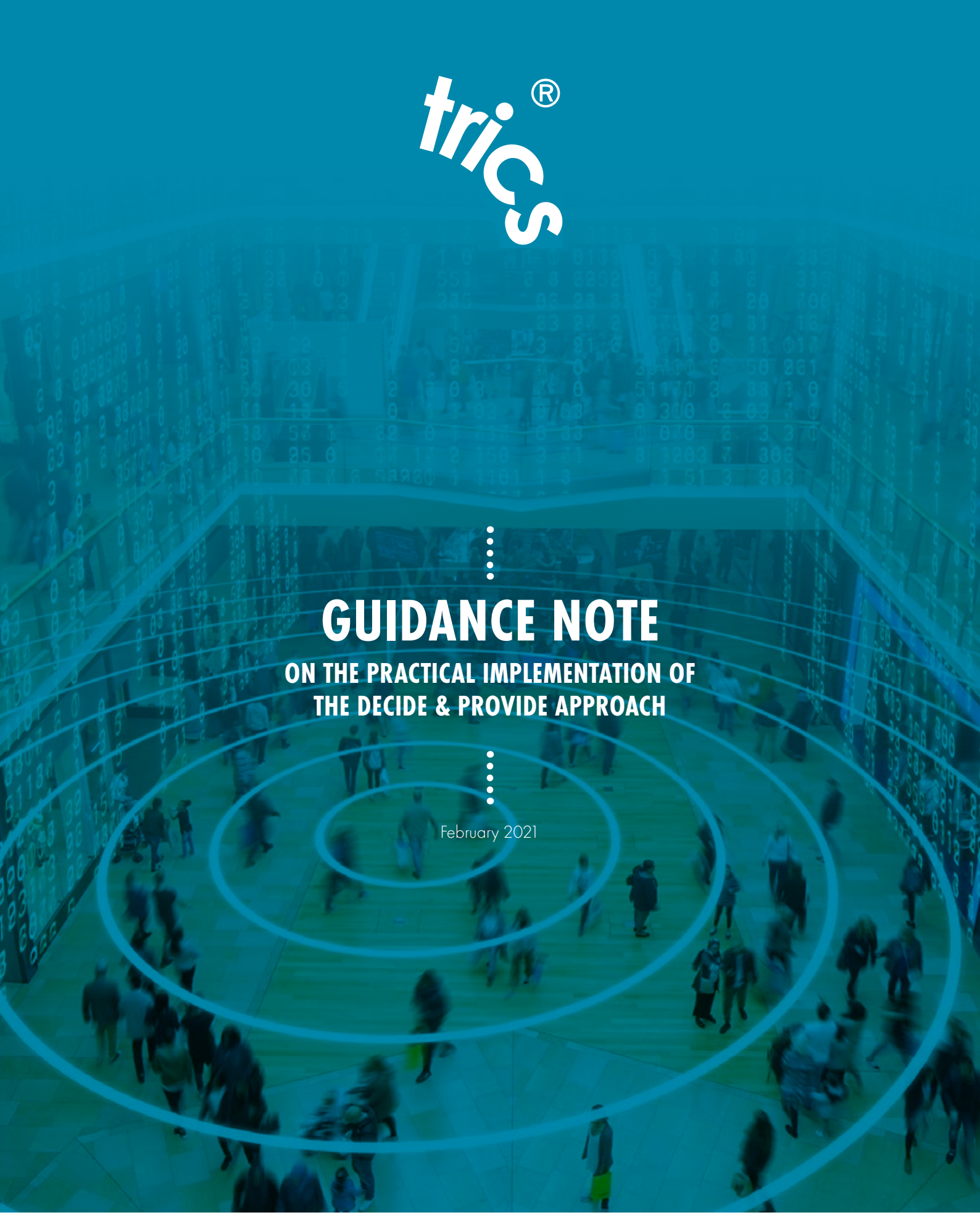


GUIDANCE NOTE

ON THE PRACTICAL IMPLEMENTATION OF THE DECIDE & PROVIDE APPROACH

February 2021

GUIDANCE NOTE

ON THE PRACTICAL IMPLEMENTATION OF THE DECIDE & PROVIDE APPROACH

CONTENTS

FOREWORD

Glenn Lyons

Mott MacDonald Professor of Future Mobility, UWE Bristol

Imagine being back in 1990. The Web was not invented. Most people had not heard of email. If you had a mobile phone, it only made phone calls. Fast forward 10 years, and a quarter of the UK population had internet access – access in the form of a 56k modem with download speeds that would now be laughably inadequate. In this past, the digital age was only just beginning to establish itself. Yet in the intervening years its collision and merging with the motor age has brought about considerable change – change in how we communicate and undertake activities in our daily lives; and change in whether, to what extent, how and to where we travel. We are now in a society within which digital connectivity is extensive, as are the forms of communication and consumption that this enables. Indeed, we live our lives within a 'Triple Access System' comprised of different and interacting means of being able to access people, jobs, goods, services and opportunities. The transport system provides access through physical (motorised) mobility. The land use system provides access through spatial proximity (and use of active travel). The telecommunications system provides access through digital connectivity. Such access is what supports economic activity and social wellbeing.

The Covid-19 pandemic has tested the resilience of, and adaptability in how we are able to use, the Triple Access System. We have collectively relied more heavily on spatial proximity and digital connectivity for access – 'living local and acting global'. Meanwhile, the UK has set itself a legally binding commitment to decarbonise its economy. At the heart of this is the challenge of decarbonising transport, a sector whose direct emissions represent over a quarter of the UK's greenhouse gas emissions.

In short, society is in a state of flux and with a sense of deep uncertainty about what the future has in store; while at the same time we have decided upon a preferred decarbonised future and must now set about providing the means to achieve this – in the face of the uncertainty.

The way we think about planning for the future is beginning to change and needs to change in response to the circumstances above. In contrast to the forecast-led paradigm of Predict and Provide, we need to embrace the vision-led paradigm of Decide and Provide – decide upon a preferred future and then provide the means to help realise that future and which can accommodate the uncertainty.

TRICS has been an influential resource for transport planning in relation to new developments. Its ever-growing database of observed (multi-modal) trip rates associated with different types and scales of development has been a yardstick for informing estimates of trip rates associated with proposed developments. Such estimates have guided

requirements for transport infrastructure and services. It would not be an exaggeration to say that TRICS has been instrumental in the planning processes and decision making that have shaped settlements and associated transport provision in the UK.

In times of change – times of needing to shape the future rather than only perpetuate past trends – it might be supposed by some that the usefulness of TRICS is diminished. However, this is not the case, as the TRICS database of observed data has, over time, been charting the changes in travel patterns associated with developments. This provides an important opportunity for it to inform a Decide and Provide approach. Crucially, the way in which TRICS is used needs to change. Its ability to shine a light on how trends are changing needs to be coupled with the use of scenario planning to expose future uncertainty regarding how they will continue to change into the future. In this way it becomes possible for a supply-led demand approach to planning to be evidence-based whereby the case can be made for a new development whose design will be able to shape behaviour into the future, favouring preferable outcomes; rather than being confined to making the case for new development whose design is judged by whether it will satisfy future projected travel demand and trip rates.

This TRICS Guidance Note offers practitioners a timely and important opportunity to apply Decide and Provide, supported by the richness of data TRICS contains. The Note helps bring into reach the possibility of achieving stronger planning with better outcomes in the face of deep uncertainty about the future. Drawing upon a wider and growing body of insight, evidence and advice, it emphasises the perennial importance of planning and transport being treated together and provides a series of worked examples that help give confidence to those using the guidance.

As the Note rightly observes, embracing change in how we plan for the future requires a learning by doing approach. The Note helps ensure the community of TRICS users is able to become part of that change and in time, experiences of applying the guidance will no doubt serve to evolve and further strengthen the guidance itself.

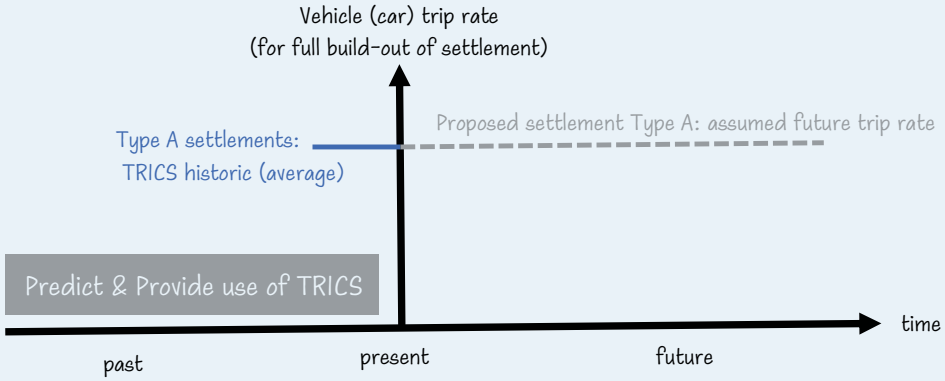
We must not let our past approach to shaping the future constrain how we approach shaping the future going forwards – please use this guidance to good effect.

To conclude the Foreword, I offer on the following page my own attempt to summarise how this guidance enables TRICS to be used by practitioners to apply a Decide and Provide approach to planning for the future.

PREDICT AND PROVIDE USE OF TRICS

Settlement type A is being proposed for development.

Look in the TRICS database for other settlements of type A (covering more recent years) and determine an appropriate (average) vehicle (car) trip rate figure. Implicitly this trip rate is assumed to apply for the settlement (once fully built-out) into the future and is used in the Transport Assessment. The trip rate figure takes little or no account of how the trip rate could be influenced by the design of the new settlement type A.



DECIDE AND PROVIDE USE OF TRICS

Settlement type A is being proposed for development.

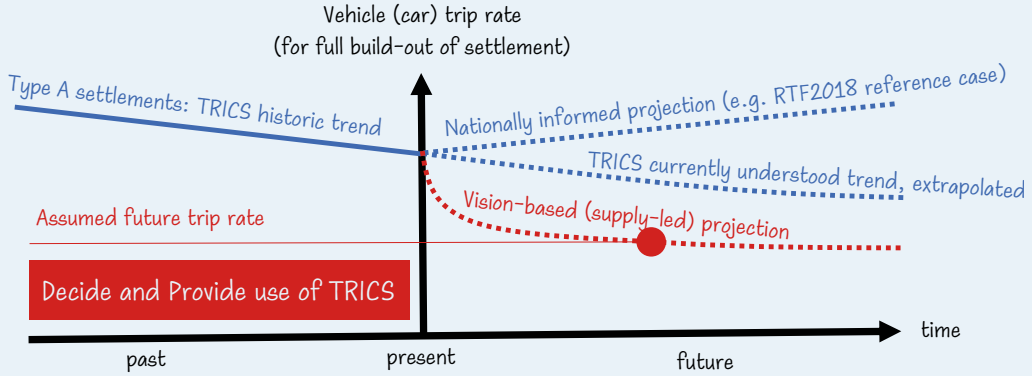
Look in the TRICS database for other settlements of type A, as far back in time as the database allows, to determine a trend line of how trip rates for such settlements have changed over time. Assume this trajectory continues into the future, possibly with a modified slope (TRICS currently understood trend, extrapolated). Then consider one or more nationally-informed projections of trip rate for how car trips are changing (taken at present from the latest National Road Traffic Forecasts 2018).

This set of plausible trajectories for trip rates for the new settlement type A creates a 'forecast fan' within which it can reasonably be assumed the unadjusted out-turn car trip rate over time for settlement type A lies.

Given assumptions about the (vision-based) design of the new settlement type A, and accounting for the forecast fan of changing trip rate, identify a justifiable vision-based (supply-led) projection.

Identify along this projection a reasonable trip rate that can be used in the Transport Assessment to apply for the settlement (once fully built-out) into the future (acknowledging that future trip rate may continue to change over time).

While it may seem more apparent for the Decide and Provide use of TRICS, both approaches implicitly if not explicitly make significant assumptions about an unknown future. Selection of vehicle trip rate is a matter of judgement. In the case of the Decide and Provide use of TRICS, an important assumption is that person trips to settlement A are distinguished from vehicle trips, and that the difference between the two is influenced by the design of the settlement.



PART ONE

1 INTRODUCTION

"Decide and Provide" (D&P) is a planning paradigm that is vision-led, rather than forecast-led (Predict and Provide), and which aims to improve the resilience of planning decisions by taking account of deep uncertainty about the future[1]. At its heart is deciding on a preferred future and providing a development path best suited to achieving it.

1.1 Over the years, TRICS has played a pivotal role in supporting the transport assessment process for new development. A key requirement in this process is the determination of trip rates (whether these be multi modal, vehicular or person trip rates). These trip rates are necessary for the assessment of trip generation. The 121 separate land use categories in the database system allows its users to establish potential levels of trip generation for a wide range of development and location scenarios.

1.2 The TRICS evidence base contains over 7,150 transport surveys. The individual site records within the database contain comprehensive, detailed information on a site's local environment and surroundings; the composition and functions of a site; its on-site and off-site parking facilities; and hourly, directional transport count results covering a wide range of transport modes. Annual data collection programmes ensure that new transport surveys are added to the database every three months.

1.3 As a result of the TRICS system development and its frequent updating, TRICS has become the industry standard for assessing trip generation and is a regular source of evidence at Public Inquiries.

1.4 What has recently become more apparent is that TRICS' bank of data and historic trends analysis provides the context for TRICS users to recognise that change in travel behaviour is happening at a local level. This change in travel behaviour can, and should, be reflected in the analysis of trip generation for local development proposals.

1.5 In the transport assessment process, deciding on a preferred future and providing a development path best suited to achieving it can be represented by setting out a range of the potential trip generation outcomes that could take place within a proposed development in the context of "what sort of place are we creating?" A range of trip generation can include consideration of background growth scenarios, as well as the implications of high and low provision of sustainable transport measures. The latter can be determined through scrutinising the TRICS outputs for comparative locations which have differing levels of sustainable transport provision. The sustainable transport provision evidence can be sourced through TRICS evidence of comparative sites.

1.6 TRICS can play a fundamental role in the D&P process through its evidence base and site selection process. This guidance, prepared by the TRICS Consortium Limited (TRICS) on the Practical Implementation of the Decide and Provide Approach ("the Guidance"), sets out how this role can be delivered.

1.7 Part One of this Guidance provides the context and the background to the D&P approach and why it is critical for transport practitioners to follow this approach. Part Two of the Guidance sets out a real-world case study and a series of worked examples demonstrating the new approach.

1.8 It is recognised that the D+P approach is at the early stages of application. New working practices will emerge, and TRICS acknowledges that there will be a need to update this Guidance on a regular basis – every 12 -18 months taking into account new case studies and practices.

1 As set out in Lyons, G. and Davidson, C. (2016). Guidance for transport planning and policymaking in the face of an uncertain future. Transportation Research Part A: Policy and Practice, 88, 104-116. http://dx.doi.org/10.1016/j.tra.2016.03.012

WHO IS THE GUIDANCE WRITTEN FOR?

1.9 This Guidance is primarily aimed at transport planning professionals, including TRICS users, in the public and private sectors. It is intended that this Guidance will assist, in particular, those who prepare or review transport appraisals, including Transport Assessments (TA) and Transport Statements (TS).

WHAT LEVEL OF KNOWLEDGE DOES THE GUIDANCE ASSUME?

1.10 The Guidance assumes a working knowledge of the UK's and Ireland's respective land use planning systems, as well as the transport assessment process. It specifically assumes (as a minimum) an awareness of the TRICS system, managed by TRICS. Please see the website http://www.trics.org/ for further information about TRICS, with particular reference to the latest version of the TRICS Good Practice Guide.

WHAT IS THE PURPOSE OF THIS GUIDANCE?

1.11 This Guidance has been developed as a follow-up to the previous TRICS Guidance Note on Changes in Travel Behaviour issued by TRICS in August 2019. This previous guidance note reports trends in travel behaviour over the past three decades or so and considers the key implications for the use of TRICS today. Trends evidence in the following key documents are also considered in the previous guidance note, which are referred to further in this Guidance:

- All Change? The future of travel demand and the implications for policy and planning: The First Report of the Commission on Travel Demand, May 2018 ("All Change?");
- Road Traffic Forecasts 2018: Moving Britain Ahead, Department for Transport, July 2018 (RTF18); and
- National Travel Survey 2016, Department for Transport, July 2017 (NTS 2016).

1.12 The purpose of this Guidance is to:

- Raise awareness of the D&P approach.
- To increase knowledge of the D&P approach.
- To support and assist the practical implementation of the D&P approach.
- To assist transport professionals and practitioners in using the D&P approach in the preparation, and review of, transport appraisals, including TAs and TSs.
- To encourage innovation and support best practice in the transport planning industry.
- To inform plan-making and related strategic transport appraisal work.
- To maximise the use of TRICS's bank of survey data to best effect.
- To help address the lack of guidance in this area.
- To support and reflect the ongoing paradigm shift.

1.13 It is fundamental that TRICS, as an industry standard spatial planning tool, provides direction to support the D&P approach and to help manage increasing uncertainty in forecasting and trip generation analysis. This is explored further below.

1.14 At the outset, it is stated that this Guidance challenges orthodox wisdom and practices that have become embedded in the transport planning industry. The need for this is also set out below.

1.15 This Guidance has been prepared at the start of an anticipated period of transition heralded by the publication of Planning for the Future White Paper in August 2020[2] ("the Planning White Paper"). The Planning White Paper presents a series of proposals for the wholesale and radical reform of England's planning system. These proposals include:

- a new emphasis on front-loading and engagement at the plan-making stage (p.20);
- a greater focus on placemaking within the National Planning Policy Framework (NPPF) (p.21);

2 Planning for the Future White Paper August 2020, Ministry of Housing, Communities & Local Government.

- the use of clear national data standards with the promotion of standardised, open and digitally accessible data sets (p.37); and
- the abolition of the current system of Section 106 planning obligations and its replacement with a new consolidated 'Infrastructure Levy' (p.62).

1.16 These proposals emphasise the importance of adopting a D&P approach at the earliest possible stage, as part of the plan-making's visioning and (Growth, Renewal and Protected) area identification processes.

LEARNING OUTCOMES

1.17 This Guidance is intended to have the following learning outcomes:

- Understanding what the D&P approach is and why it is needed.
- Informing the preparation, and review of, transport appraisals, including TAs / TSs.
- Supporting TRICS users in making best use of TRICS's bank of survey data, including historic data sets.
- Understanding of how the D&P approach relates to the wider plan-making and development management/ development control processes.

2 HOW HAS TRICS BEEN USED IN THE PAST?

TRICS provides its users with a large, independent set of data for use in TAs and TSs and the system has been used as a basis for deriving trip rate estimates for proposed developments.

2.1 The system allows its users to establish potential levels of trip generation for a wide range of development and location types (there are 121 separate land use categories in the database). It is widely used as part of the planning application process by both developer consultants and local authorities. There are currently over 500 office locations in the UK and Ireland that are registered as TRICS® users.

2.2 The TRICS Good Practice Guide provides guidance on the selection criteria and data ranges that are important to assist in focusing on data best able to inform person trip rates and vehicle trip rates for proposed developments. It is fundamentally important to follow the latest version of the TRICS Good Practice Guide to ensure that the appropriate data sets are used in the TA/TS.

2.3 A common misunderstanding is that TRICS simply provides vehicle trip generation calculations whereas, in fact, it provides multi-modal data (walking, cycling and public transport trips) and historical trends data, including for residential and commercial sites. Use of vehicle trips only will inevitably lead to unsustainable development being promoted as no account will be taken of the contribution of other modes in the assessment process.

2.4 The latest version of the TRICS Good Practice Guide clearly states in Section 12 that users must avoid attempting to "fit" trip rate results to pre-determined levels by manipulating the system incorrectly (12.1). However, despite this advice, this practice has been observed which has, in turn, led to the "Predict and Provide" approach being sustained.

2.5 The latest version of the TRICS Good Practice Guide also highlights the risk of using the 85th and 15th percentile trip rates where there are less than 20 surveys selected (13.6). Presenting relatively high trip rates may wrongly inflate potential parking and highway capacity provision which, in turn, does not support sustainable development.

3 WHY DO WE NEED THIS DECIDE AND PROVIDE GUIDANCE IN THE TRANSPORT APPRAISAL PROCESS?

Simply put, there is currently a real lack of available guidance in this field.

3.1 TRICS is responding to the fact that the world is experiencing significant change in social, technological, economic and environmental drivers which, in turn, is creating new challenges for transport planning.

3.2 This change has been further impacted and future uncertainty amplified by the Covid-19 pandemic. The DfT has published initial evidence on the impacts of Covid-19 on travel behaviour and on-going research will continue regarding the pandemic and the implications for health and travel. This is cited below. Practitioners are advised to source such evidence as part of documenting their assumptions for future travel behaviour.

3.3 TRICS has therefore identified the specific need to develop clear and concise guidance for practitioners to better understand and implement the D&P approach, given this lack of such guidance in this area.

3.4 The need for this Guidance is reflective of a paradigm shift that is taking place in the transport planning industry, with demonstrable appetite amongst practitioners[3]. Indeed, the Commission on Travel Demand hoped that the All Change? report would represent, "the start of a sea-change in practice" (p.6).

3.5 The transport planning industry needs to keep developing and responding to a changing world; it cannot remain static. Previous changes have included the transition from the vehicle-centric Traffic Impact Assessment (TIA) approach to the broader, more multi-modal TA approach, as well as the more recent transition from the established TA approach to the Healthy Streets Approach to TAs, as promoted by Transport for London (TfL).

3.6 The above transition has been reflected in the evolution and continued development of TRICS itself, with an initial focus on vehicle-trip rates giving way to multi-modal trip rates and the subsequent creation of the national standard assessment methodology (SAM) for assessing the effect of travel plans. Established in 1989 and with more than thirty years of survey data, TRICS has been an important data source to identify and demonstrate trends across land uses and different geographical areas over time.

3.7 Understanding the future demand for travel is important. All Change? identifies three reasons for this importance (7.1):

- *It matters to understanding how society works and to understanding how transport policies should be best designed to influence this;*
- *It matters to some crucial policy priorities such as the health and wellbeing of people today and far into the future; and*
- *It matters because transport planners are responsible for the effective spending of billions of pounds of investment from setting up rail franchising contracts to building new roads.*

3.8 However, in spite of this importance, All Change? goes on to comment that the assumptions, developed during decades of planning for growing car ownership, which underpinned our understanding of travel demand growth, "are now limited and sometimes wrong" (7.1).

3.9 This change or transition in the transport planning industry is characterised as a paradigm shift from the Predict and Provide to the D&P approach.

3 Lyons, G. (2016). Uncertainty Ahead: Which Way Forward For Transport? Final Report from the CIHT FUTURES Initiative, Chartered Institution of Highways & Transportation, August, London. https://www.ciht.org.uk/knowledge-resource-centre/resources/futures/

4 | WHAT IS PREDICT & PROVIDE AND WHAT ARE THE IMPLICATIONS OF STICKING WITH THIS APPROACH?

The American industrialist and founder of the Ford Motor Company, Henry Ford, is attributed with saying "If you always do what you've always done, you'll always get what you've always got", as cited in the All Change? report (p.14).

4.1 The Predict and Provide (P&P) paradigm, sometimes referred to as the 'rear view mirror' or 'business as usual' approach, essentially uses past or historical traffic and socio-economic trends to determine the future need for infrastructure. It can be perceived as replicating and reinforcing the status quo. Traditional transport planning has, by default, used the P&P process using these past trends to forecast the transport needs of the future.

4.2 In its publication Better planning, better transport, better places, published in August 2019, the Chartered Institution of Highways & Transportation (CIHT) identifies the "scourge" of P&P and associated "outdated assessment methodologies" as a barrier to better planning (3.1, p.13).

4.3 Given that society is experiencing significant changes in mobility and the digital age is offering more choices to the way in which we work, shop and play, there is deep uncertainty over what the future transport needs may look like. As noted above, this has been yet further compounded by the Covid-19 pandemic, for example through the accelerated take-up of working from home in some sectors and internet-based delivery services.

4.4 The risks associated with sticking with the P&P approach need to be recognised and acknowledged. If we continue to reproduce past transport solutions based on previous travel behaviours, it is inevitable that transport planning will continue to seek to provide infrastructure that meets previously predicted needs, rather than meeting, and indeed shaping, the transport needs of the future. It is important to recognise society's needs and changes in society, to avoid the over-provision of highway infrastructure and the perpetuation of car borne development. The possible consequences, unintended or otherwise, include:

- The potential over-provision of highway capacity which, in turn, can induce motorised traffic (exacerbating efforts to reduce direct CO_2 emissions from the transport sector);
- The potential under-provision of walking and cycling infrastructure or public transport services; and
- The risk of planning and developing underutilised or stranded assets.

5 | WHAT IS DECIDE & PROVIDE AND WHY SHOULD WE USE THIS APPROACH?

TRICS recognises that the P&P paradigm, that has framed transport planning processes for the past few decades, is giving way to the D&P paradigm. D&P is to decide on the preferred future and provide the means to work towards that which can accommodate uncertainty.

5.1 The D&P approach provides the opportunity for more positive and integrated transport and land use planning. It also provides the opportunity to meaningfully implement the modal hierarchy[4], giving greater centrality to the up-front consideration of walking and cycling, rather than a more cursory treatment as residual or less considered modes that has sometimes, historically, been the case.

5.2 It is important that, as transport professionals, we engage fully with this paradigm shift. We need to take decisions and make provisions that respond to the following key drivers including the following:

- The drive towards Net Zero[5] climate change or greenhouse gas (GHG) emissions.
- Strategies to decarbonise the transport sector, being progressed in the UK's Transport Decarbonisation Plan[6].
- In terms of health and wellbeing, respond to the UK's obesity crisis (also further compounded by Covid-19) and further promote active travel provision.

5.3 It is important to remember that TRICS holds a valuable bank of data which, when applied in conjunction with the consideration of trends in travel behaviour changes, can provide practitioners with a new view on trip generation that will support and enable a move away from P&P appraisal techniques towards D&P.

WHY ARE CHANGES IN TRAVEL BEHAVIOUR TAKING PLACE?

5.4 As stated earlier, the TRICS Guidance Note on Changes in Travel Behaviour was issued in August 2019. This previous guidance note reports trends in travel behaviour over the past three decades or so and draws from evidenced trend data in All Change?, RTF18 and the NTS 2016. The cited data demonstrate that there has been a substantial and sustained change in travel behaviour since the late 1980s and 1990s. This change is reflected in TRICS trip rates for residential, retail and employment sites.

5.5 Changing relationships between economy, society and travel have given rise to these behaviour changes. As All Change? observes, "As society changes so does the role of transport within it" (p.14). All Change? draws together insights on trends and trend analysis from a wide range of sources. Key long-term (pre Covid-19) travel behaviour changes reported in All Change? are highlighted below.

- **Travelling less:** There is now evidence going back 25 years that we are travelling less today than we used to. On average, 16% fewer trips are made now than in 1996. We use motorised transport for almost 100 (14%) fewer trips per year than in 2002. Person miles are 10% less than in 2002 and people are spending 22 hours less time travelling than in 2005, and less than at the start of the 1990s (4.2).
- **Retail:** All Change? observes that (pre Covid-19) online shopping had been, "growing at around 10-12% per year" and in 2018 represented, "almost 17% of total UK retail sales". All Change? also observes that there has been a corresponding, "30% decrease in physical shopping trips over the past decade and a 16% decline in distance travelled" (4.3.2). This is exemplified by the rise in Amazon and the challenges facing the conventional High Street. The Covid-19 pandemic has amplified this trend. Office for National Statistics (ONS) retail sales

4 For example, indicated in paragraph 110 of the National Planning Policy Framework, published by the Ministry of Housing, Communities and Local Government in February 2019.

5 For example, the Climate Change Act (2050 Target Amendment) Order 2019, which was made on the 26th June 2019 (SI 2019/1056), which legislates for net zero emissions in the UK.

6 See Decarbonising Transport: Setting the Challenge, Department for Transport, March 2020.

figures show that online sales as a proportion of all UK sales hit a record high of more than 30% in May 2020 during lockdown.

- **Rail travel:** There has been a 56% increase in rail trips (4.2).
- **Age and gender differences:** People are living longer and so some of the population growth is from ageing. These people are using the car more but have different trip making patterns to people who work. The gender gap in how much people are travelling has closed and, most significantly, younger people are far less likely to have a driving license and subsequently drive less than previous generations. It is important not to assume that future generations will follow the same patterns of previous generations as they age. Younger generations are travelling less – 20% less for 17 to 34 year olds and 10% less for 35 to 64 years olds (4.2.1, p.17).
- **Driving license take-up:** Specifically, whereas in 1993 55% of 17 to 20 year old males held a license this is now 33% with the corresponding figures for women being 42% and 29% (4.2.1, p.17).
- **Socio-economic conditions affecting travel choices:** A decline in home ownership; a rise in lower paid, less secure jobs and a decline in disposable income all affect travel choices. Social interactions, substituting face to face interactions with digital communications, all affect trip making. The long-term implications of these changes are not fully known, but it is expected that earlier levels of car use by younger groups will not remain (4.2.1, p.18).
- **Geographical differences:** Shire towns, resorts and rural areas still show the highest mileage and more limited reductions than urban areas, where densities are higher and travel choices are more prevalent (4.2.2, p.20).
- **Travel to work:** The DfT's substantive review of travel to work trends in 2017 revealed that there has been a substantial decrease in commuting trips between 1988/92 and 2013/14, from 7.1 journeys per worker per week down to 5.7 journeys. The average distance to work has increased by 10% and the number of people in work has never been higher. The net effect of this, despite the previous economic growth and population growth, is a decline in annual commuting trips from 8.5 billion to 7.9 billion (4.3.1). Even prior to Covid-19, work patterns were changing, for example, working from home has been growing on both an occasional and usual basis and there has been a growth in the number of workers who don't have a fixed usual place of work. The Covid-19 pandemic has further accelerated and normalised working from home.
- **Changing transport technologies:** All Change? refers to the "Three Revolutions" of the electrification of the vehicle fleet; the automation of the driving task and the widespread adoption of shared mobility, such as Lyft and Uber (5.2). All Change? acknowledges that there is significant uncertainty about if, and if so how quickly, some or all of these potentially radical technological shifts might come to pass.

5.6 The DfT published Gear Change: A bold vision for cycling and walking in 2020. Gear Change includes a snapshot of active travel in 2018, which includes the following trend data:

- **Walking:** More people are walking further and more often. The % of walking trips has fluctuated since 2002 but has been increasing since 2014. In 2018, 27% of all trips were made by walking[7].
- **Cycling:** The average distance cycled has been increasing – by 50% since 2002. However, the number of cycle trips has remained flat over the same period, with only 2% of trips cycled (p.11, Figure 4, Gear Change).

WHAT ARE THE IMPLICATIONS OF COVID-19 ON FUTURE TRAVEL BEHAVIOURS?

5.7 Consideration of the immediate and longer-term effects on travel behaviour of Covid-19 is to track an unfolding phenomenon. Insights have been changing throughout 2020 and this is likely to continue. However, it is nevertheless helpful to consider a snapshot of its influences.

5.8 The lockdowns have necessitated a sudden, dramatic and prolonged change in people' daily lives, with new routines established. The experience has further accelerated and normalised working from home and also increased unemployment levels.

5.9 The pandemic has increased the rate of growth of the online economy, exemplified by Amazon UK's creation of 10,000 permanent new jobs in 2020. As noted above, ONS data show that online retail sales represented a peak of approximately one-third of all UK retail sales in May 2020 during lockdown.

7 Gear Change: A bold vision for cycling and walking, DfT, 2020 (p.11).

5.10 As well as accelerating working from home and internet shopping, the Covid-19 pandemic has also significantly boosted the use of digital communications platforms such as Teams and Zoom. The degree to which these behaviour changes become embedded is currently not known.

5.11 The longer-term consequences of the perceived and/or actual risk of using mass transit on the patronage and viability of public transport services and the potential preference for using the 'bubble' of a private car is not yet fully understood. Nor is the long-term potential for increased active travel - with the take-up of walking, running and cycling to improve people's health and wellbeing - to reduce known Covid-19 risk factors.

5.12 In short, the Covid-19 pandemic has increased levels of uncertainty with respect to understanding future travel behaviours; but it has also opened up opportunities and possibilities. Dealing with uncertainty is considered in the Guidance below.

5.13 The DfT has published initial evidence of the impacts of Covid-19 on travel behaviour and on-going research will continue regarding the pandemic and the implications for health and travel.

5.14 DfT, in conjunction with Ipsos MORI, published All change? Travel tracker – Wave 1 summary for the Department for Transport in June 2020. This summary document presents analysis and headline figures from a UK-wide survey commissioned by the DfT and undertaken during May-June 2020. This survey is the first in a series of four with research to be carried out until Spring 2021. Practitioners are advised to source such evidence in documenting their assumptions for future travel behaviour.

5.15 The survey confirmed that during the first national lockdown travel reduced significantly, with 61% of people using cars (either as a driver or passenger), 58% taking buses and 56% of people using trains less often or not at all compared to previously. Working patterns changed with four in ten adults, or 40%, working from home during lockdown.

5.16 In contrast, 11% reported cycling more than before lockdown, and 33% reported walking/wheeling all the way to a destination.

5.17 The survey explored whether participants would use more sustainable travel or return to pre-lockdown travel. The summary document reports (p.10):

> *"Thinking about the future more generally, the survey suggests that there could be some positive behavioural impacts from a sustainability perspective. There is a high degree of self-reported willingness to change behaviour in response to the long-term threat. Many say they are willing to do a range of things to reduce their contribution to climate change, reflecting a recognition that the long-term posed by climate change is as serious as coronavirus in the long-term (63% agree, 15% disagree)".*

6 WHAT IS VISIONING?

As stated above, D&P is to decide on the preferred future and provide the means to work towards that which can accommodate uncertainty.

6.1 Whether developing a plan (e.g. local plan) or a project (for a specific planning application), it is essential to start with, and clearly set out, a vision. This is an absolutely crucial starting point.

6.2 It will be for the applicant/plan maker to put forward the vision accompanied by an evidence-led approach.

6.3 In its publication Better planning, better transport, better places the CIHT recommends (p.6):

> *"CIHT believe in radically improving the outputs and outcomes of planning and transport by working differently and more intelligently. This starts with a clear vision to create better places for people to live in and is achieved by adopting new approaches at the strategic level and when it comes to planning individual developments".*

6.4 CIHT emphasises the importance of creating and committing to a, "compelling and clearly expressed place-based vision that has sustainable transport as well as health, climate change and environmental needs integrated from the start" (p.6). CIHT also states (p.38):

> *"A simple rule to apply at the early visioning stage is as follows: planning for people will result in places for people; planning for cars will result in places dominated by cars".*

6.5 Visioning is central to high quality place-making, creating better places to live, work and play. As such, there are three key questions that a plan or project needs to ask and meaningfully answer:

- What sort of place are we creating?
- What kind of activities do we need or desire to travel for?
- How will we provide for mobility?

6.6 Integral to creating a place-based vision is understanding how people will live and move and the development of a transport strategy to support this. The transport strategy should have clearly stated aims and objectives that sit within the overarching vision.

6.7 It is therefore essential that transport planners understand, influence and share the vision that land use planners have for a place (for a plan) or a specific site (for a project). The starting point is to understand the inherent nature of the proposal and how it is going to work.

6.8 Practitioners need to ask several questions to understand the vision's implications for development the transport strategy, noting the three top-level questions set out above. The types of other questions to be reflected upon include:

- What is the ratio of provision and proximity of new homes and new jobs?
- What is the provision of local retail and community services?
- What is the work from home provision, including broadband infrastructure?
- What is the relationship to existing education services and/or the provision of new educational facilities?
- What is the active travel provision, including the provision of new (or upgrade of existing) pedestrian and cycle infrastructure (for personal mobility and freight, e.g. cargo bikes)?
- What is the public transport and shared mobility provision, existing, upgraded and new?

- What is the specific provision for electric and other ultra-low emission vehicles?
- What is the parking provision for all vehicular modes?
- What is the physical layout of the site, including levels of accessibility and permeability?

6.9 Understanding what the vision is, the degree to which a place can meet local needs and support short-distance access to retail, employment, education and community services by sustainable and active travel (contributing to achieving net zero carbon targets) is therefore essential. The vision and the transport strategy emerging from it have a direct bearing on the following parameters or levers:

- **Internalisation Rate** – the level of internal trips occurring intra or within a site or defined area. There is limited up-to-date evidence on the variation of internalisation rates across sites and, in the absence of data, this has historically involved a degree of professional judgement in setting site-specific internalisation assumptions. What is key to determining internal trip rates is the quantum, mix, proximity and accessibility of other land uses, for example education, community facilities and retail (daily and higher order) that will be provided within the proposed development or area-wide plan.
- **Localisation Rate** – the level of external trips which are attracted to a site or defined area from the surrounding wider area, resulting in shorter, more localised trips, increasing the level of 'self-sufficiency' or 'self-containment' of an area, for example as a result of new education provision; employment opportunities; enhanced local retail offer or new local community and leisure services.
- **Trip Rate** – the measure of total movement or activity associated with a specific land use or land uses.
- **Mode Split** – specifically the percentage (%) active travel (walking and cycling) mode share, the % public transport user mode share and the % car driver (and passenger) mode share.

6.10 The stated vision for a plan or project will help inform the degree to which the above parameters or levers are used, in combination, to factor assessment assumptions to a specific future assessment year. It is important that this is done with a high degree of clarity and transparency, drawing from evidentiary sources, where available and appropriate.

7 WHAT IS SCENARIO PLANNING?

Scenario planning covers a broad range of approaches, but in the context of this guidance it refers to the development of a set of plausible and divergent scenarios of the future that help expose uncertainty and, in turn, allow the uncertainty to be accommodated within plan making.

7.1 Traffic Forecasts 2018: Moving Britain Ahead (RTF18), published in July 2018, sets out a significant change in direction by the DfT in forecasting. RTF18 states (4, p.5):

> *"Understanding future demand for road travel is essential to shape the policies we implement and the investments we make. However, forecasting future demand is complex and there is significant uncertainty about the extent to which existing trends and relationships will carry on into the future. We need to ensure that we understand and communicate this uncertainty".*

7.2 As practitioners, we therefore need to understand and accept that it is important to acknowledge and properly communicate future uncertainty in any transport appraisal process, whether strategic or local. Uncertainty is specifically considered further below.

7.3 In response, RTF18 uses a scenarios approach to (5, p.5):

> *"construct a number of different plausible future outcomes. This provides a strategic view of key uncertainties that might impact on future road traffic and supports the design of strategies and policies that are resilient to these uncertainties".*

7.4 Most significantly in RTF18 the DfT states (6, p.5):

These forecasts are not definitive predictions about the future, or desired futures, but show how road travel may evolve assuming no change in government policy beyond that already announced. These forecasts have been produced using a range of research, evidence and data focussing on:

- Our understanding of how people make travel choices
- The possible paths of key drivers of travel demand".

7.5 The range of scenarios that DfT developed in RTF18 are shown in Figure 7.1 below.

7.6 Transport Practitioners need to ask themselves (and the wider planning team) a series of prompting questions, framed around the stated vision for the project or plan, to develop relevant, plausible and policy-compliant scenarios. Likely questions are set out in the visioning section above.

F 7.1 **DfT RTF18 Scenarios Summary**

SCENARIO	ASSUMPTIONS
1 (Reference)	NTEM7.21 (ind. constant trip rates) Updated central forecasts for GOP (OBR) BEIS Central Forecasts for Fuel Central projectio,n for Population (ONS) Web TAG Value of Time 25% of car and LGV mileage powered by zero emission, technologies by 2050
2 (High GOP, Low Fuel)	High GDP Growth (+O.Spp Growth on OBR) Low Fuel Cost Projection (Fossil Fuel Price Assumptions 20171 BEIS~
3 (Low GOP, High Fuel)	Low GDP Growth (-0.Spp Growth on OBR) High Fuel Cost Projection (Fossil Fuel Price Assumptions 2017, BEIS)
4 (High Migration)	High Migration population variant (ONS) No Relationship between Income and car Ownership in London High LGV Growth High HGV Growth
5 (Low Migration)	Low Migration population variant (ONS) Low LGV Growth Low HGV Growth
6 (Extrapolated Trip Rates)	Extrapolation of recent trip rate trends until 2050 Extrapolatiion of recent decreases in young person Jic,ence holding
7 (Shift to ZEVs)	97% of car and LGV mileage powered by zero emissi.on technologies by 2050 (Assumes alll car and LGVs sold are zero emission by 2040)

Reproduced from: DfT RTF18 (July 2018)

7.7 In quantitative terms, a future scenario for a project or plan will involve consideration of the following parameters or assumptions:

- The % change in trip rates.
- The % level of trip internalisation assumed.
- The % change in car driver mode share.
- The % change in active travel mode share.
- The % change in public transport and shared mobility shares.
- The level of accessibility and mobility assumptions that the site layout and the land uses in the proposed project support.

HOW MANY SCENARIOS DO YOU NEED?

7.8 The number of scenarios needed will be a matter of professional judgement. This Guidance considers that three different and plausible, scenarios may be typically considered. For example:

- Scenario 1 – DfT Scenario 1 (Reference) using current trip rates taken from TRICS.
- Scenario 2 – DfT Scenario 6 (Extrapolated Trip Rates)
- Scenario 3 – DfT Scenario 6 (Extrapolated Trip Rates) using adjusted trip rates taken from TRICS which take account of increased internalisation, increased working from home and low/zero carbon initiatives.

7.9 Additional scenarios can be produced that take account of the phasing and implementation of the proposed development / development plan.

SHOULD YOU STILL USE WORST CASE ASSUMPTIONS AND SENSITIVITY TESTING?

7.10 All Change? considers the persistence of a core scenario and observes that the notion of a core or 'most likely' scenario still pervades planning practice and sees no justification for one demand scenario to continue to predominate decision-making processes (6.1.2). In response, Recommendation 5 of All Change? states (7.2.2):

> *"There should be a shift to adaptive decision-making approaches. The current practice of operating with a 'core' or 'preferred' scenario is not defensible...a more pluralistic and feasible set of futures should be developed".*

7.11 More recently, in DfT's publication Appraisal and Modelling Strategy: Informing Future Investment Decisions – Moving Britain Ahead, published in April 2019 ("Moving Britain Ahead"), the DfT notes (2.26):

> *"As a central theme of this strategy, we aim to support users in making the best use of modelling assets in order to understand the performance of proposed schemes in different future scenarios. Decision-makers view this as an essential role for analysis to provide a greater depth of understanding of potential impacts, rather than a single best prediction".*

7.12 The DfT is again showing general support for the use of scenarios in transport appraisal. With regards to presenting uncertainty, Moving Britain Ahead outlines suggestions including (5.4, p.42):

> *"replacing the idea of a 'core' scenario with several equally plausible scenarios, using graphics to communicate ranges or including additional scenarios".*

7.13 A range of potential trip generation arising from plausible future scenarios could be represented as a trip rate fan or "fan of influence", which illustrates the outcomes of these different scenarios. This "fan of influence" should be reported in the TA or similar, with a recommendation made on the most plausible scenario to achieve the vision for the site or area (taking account of phasing and implementation).

7.14 **F 7.2** below reproduces Figure 25 from DfT's RTF18 to illustrate the use of graphics to communicate a range of scenarios, an example of a "fan of influence".

7.15 The prime consideration of the 'worst case' scenario, to the exclusion of other scenarios, is deep-rooted and pervasive in the decision-making process. This needs to be challenged. In transport assessment, the focus on the 'worst case' is essentially a mathematical exercise to test the highway network's capacity. However, it is important to ask how realistic and how plausible a 'worst case' scenario is likely to occur. The 'worst case', with car use continuing to predominate, suggests that a project or plan is without policy compliance, without mitigation and without safety interventions.

7.16 Similar to the consideration of the 'worst case', sensitivity testing is primarily a mathematical exercise or 'safety net' to allow for a margin of error and support the degree in confidence. Scenario planning is a more profound and fundamental process that seeks to understand how well aligned a project or plan is with the desired future state or vision.

F 7.2 Illustration of a "Fan of Influence"

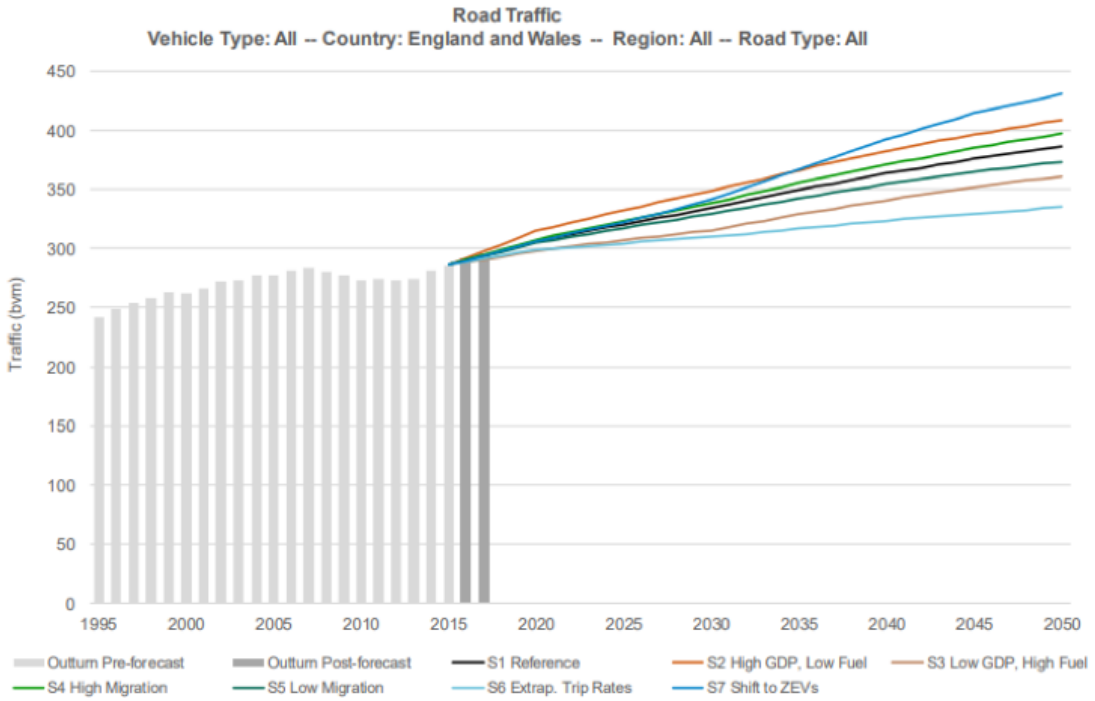


Figure 25: Vehicle miles forecasts for England & Wales

Reproduced from: DfT RTF18 (July 2018)

7.17 It is important to state that the use of scenarios should not be carried out as a mechanism to minimise investment in the transport infrastructure. Using D&P does not reduce the overall investment, rather it redistributes it to other travel modes.

WHY IS IT IMPORTANT TO ACKNOWLEDGE UNCERTAINTY AND HOW DO WE DEAL WITH IT?

7.18 It is acknowledged that we live in an increasingly uncertain world and that this uncertainty has only been further compounded by the Covid-19 pandemic. DfT's Moving Britain Ahead acknowledges this for even the pre-pandemic case (5.7, p,43):

> *"In the short term, however, there is considerable inherent uncertainty around future behavioural and technological developments which we need to take into account in our strategic forecasts and scheme appraisal. We need to accept this high degree of future uncertainty and ensure uncertainty analysis is provided to decision makers to help them understand it".*

7.19 In Moving Britain Ahead, the DfT commits to developing an Uncertainty Toolkit, with a prototype to be produced by 2021. Practitioners are advised to refer to this toolkit, once available. This should assist both practitioners and decision-makers equally.

7.20 In November 2019, Professors Glenn Lyons and Greg Marsden published their paper entitled Opening out and closing down: the treatment of uncertainty in transport planning's forecast paradigm. This paper first focusses on different ways in which there is an opening out or acceptance of new uncertainties and how this creates a (wider) set of potential futures. It then turns to consider how this set of futures is used, or not, in decision-making, i.e. the process of closing down uncertainty to arrive at, or at least inform, a decision. The paper concludes that, "transport decision making would benefit from a rebalancing of technical depth with analytical breadth".

7.21 The paper recognises as a "highly significant step" that both the 2015 and 2018 sets of national road traffic forecasts (NRTF) abandoned the notion of a central projection or 'most likely' future.

7.22 The paper also recognises that there is, "a need to make sense of the uncertainty faced and consider how it can be accommodated in a way that is appropriate both in terms of analytical rigour and ease of communication, thereby supporting rather than paralysing decision making" (Lyons & Marsden, 2019). The paper also states:

> *"The application of new approaches should be strongly encouraged, with a 'learning by doing' philosophy where experiences of those new approaches and the lessons learned are shared with others".*

7.23 This philosophy and approach are endorsed in this Guidance.

8 WHAT ABOUT EVIDENCE?

A clear evidence-based approach to D&P should be taken and reported upon in the TA (or TS) accordingly. A robust evidentiary base, transparently and accurately sourced, remains as important as ever. Up-to-date and relevant evidence should be cited wherever possible.

8.1 *All Change?* developed a series of recommendations, which included the following:

> **Recommendation 4:** *A longer-term ex-post evaluation database should be established. There is a disappointingly thin evidence base on the extent to which projects and policies deliver against their forecasts. Without this, it is impossible to learn which elements of our planning are the greatest risk factors or are overlooked and which we get right.*

8.2 The travel behaviour trends evidenced in All Change? and the trends emerging from the TRICS dataset itself, presented in the previous TRICS Guidance Note on Changes in Travel Behaviour, are useful starting points.

8.3 The National Travel Survey (NTS) is also another helpful source of information to guide practitioners in trends. The NTS is a household survey of personal travel by residents of England travelling within Great Britain, from data collected via interviews and a one-week travel diary. There are equivalent NTS household surveys for Wales, Scotland, Northern Ireland and Ireland. The NTS in England is part of a continuous survey that began in 1988, following ad-hoc surveys from the 1960s, which enables analysis of patterns and trends.

8.4 The Census provides a very useful data source at a range of geographical scales but the dataset currently available is almost a decade old. The Government has confirmed its intent to hold the 2021 Census of population and housing in England and Wales[8], with it conducted primarily online. Once available, the new Census 2021 data will form an important up-to-date, robust and geographically varied evidentiary source.

8.5 TRICS' standard assessment methodology (SAM) survey process supports the travel plan implementation and monitoring process through the collection of robust and standardised multi-modal survey data, increasing the available evidence base.

8.6 Where there are research gaps, these need to be acknowledged. Post-implementation scheme monitoring has an important part to play in addressing this and improving the evidentiary base. This is particularly the case with respect to developing trip internalisation assumptions. The latest version of the TRICS Good Practice Guide makes specific reference to the issue of internalisation within mixed use developments (17.3 – 17.6).

8 Confirmed by the Census (England and Wales) Order 2020, laid in draft before Parliament on 2nd March 2020.

9 IS THE D&P APPROACH APPROPRIATE FOR ALL PLANNING APPLICATIONS / SCALES OF DEVELOPMENT?

As an approach, a way of thinking or mindset, D&P is relevant to all scales of development and its application can be tailored accordingly.

9.1 Whether it is a minor planning application for, say, less than ten residential units; a major planning application for an urban extension or indeed a strategic new settlement, the visioning process to support high quality place-making is applicable, relevant and indeed necessary across all scales. The D&P approach involves thinking and deciding about how settlements can be designed that shape the environment and supports change in travel behaviour.

9.2 A distinction can be made between the D&P approach as a whole and the application of the specific technique of scenario planning. Scenario planning allows us to open up about uncertainty and consider a range of plausible scenarios as we look ahead to the future and take account of societal trends. The key consideration relating to a project (or indeed plan) is the implementation timeline (and associated phasing). The longer the timeline, the further ahead the need to look into the future (with more likelihood of changing behaviours), the more necessary a scenario planning exercise becomes.

9.3 This Guidance supports the application of the D&P approach for all projects, whether they are supported by a simple TS or an extensive TA. However, for smaller-scale, less complex projects, it is acknowledged that a lighter-touch consideration of a range of plausible futures may be appropriate. The full deployment of scenario planning techniques considering multiple plausible scenarios over an extended timeframe is more likely for projects supported by a full TA and/or Environmental Statement (ES) at the planning application stage. These are typically medium to large (and increasingly complex) projects with an extended implementation programme, potentially with multiple phases.

9.4 The National Planning Policy Framework ("the Framework"), published by the Government in February 2019[9], considers plan-making. The Framework specifies that strategic policies in a development plan should look ahead over a minimum 15 year period (from adoption) to anticipate and respond to long-term requirements and opportunities (para. 22). This *minimum fifteen-year* requirement is a useful benchmark for which scenario planning would be essential.

9.5 Separate from, but linked, to project/plan timeframe, there are three main parameters to consider:

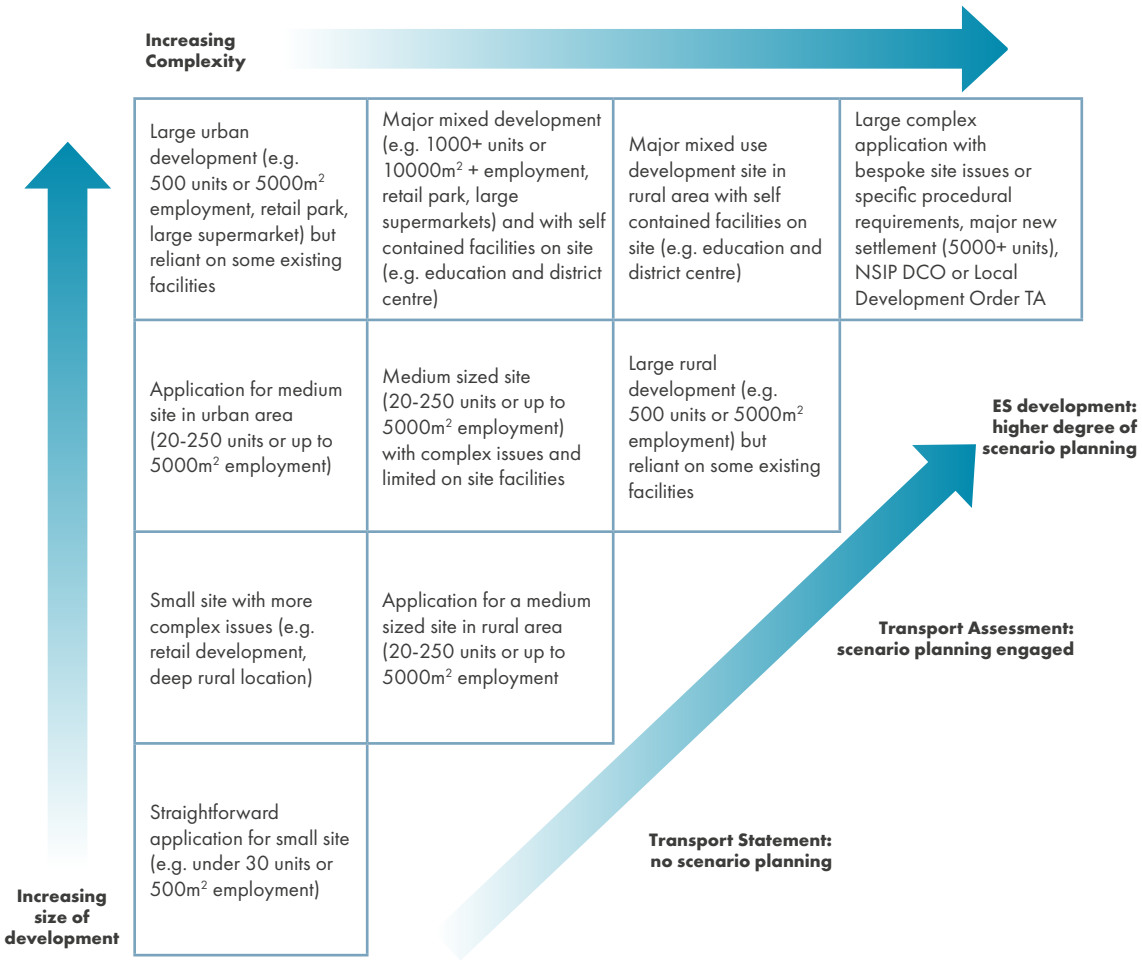
- **Scale** – The need for scenario planning will increase with the project size. All major planning applications relating to 500+ homes or 5,000m2 employment/retail floorspace should be supported by scenario planning.
- **Sensitivity** – The need for scenario planning will also increase with increased project sensitivity, for example in less accessible rural areas or, conversely, highly congested, dense urban environments.
- **Complexity** – The need for scenario planning will also increase with project complexity.

9.6 The extent of scenario forecasting required is a product of a project's scale, sensitivity and complexity and this should be discussed as early as possible during the pre-application scoping process. It is recommended that early pre-application scoping discussions with the relevant local highway authority and local planning authority (LPA) are held to discuss and agree the need for, and extent of, scenario planning required.

9.7 The scalability guide matrix, shown in **F 9.1** below, provides an alignment of the D&P approach to the established concepts of TSs and TAs.

9 Applicable to England.

F 9.1 Scalability Guide Matrix



10 | WHAT IS THE ROLE OF DECIDE & PROVIDE IN THE LOCAL PLAN PROCESS?

Typical stages in local plan development would be the development of spatial options and the identification of their attendant issues ("issues and options"); identifying a preferred option ("preferred option") and preparation of a submission version of the plan ("submission draft").

10.1 The evidence of the transport implications of the local plan will need be developed at each stage. Public consultation forms a pre-requisite before moving to the next stage and the eventual submitted plan will be subject to a formal examination in public.

10.2 In Better planning, better transport, better places, referred to above, the CIHT identifies barriers to sustainable planning, which include the late consideration of transport needs, with transport often considered too late in the plan making process (p.13, 3.2). CIHT observes that it, "is almost impossible to arrive at an appropriate Local Plan strategy without effective joint working and collaboration between the LPA and the relevant transport authorities and operators" (p.33).

10.3 The CIHT identifies a number of key changes required, which are recommended to improve current practice (p.6). These include:

- Local plans must commit to a compelling and clearly expressed place-based vision that has sustainable transport as well as health, climate change and environmental needs integrated from the start (1).
- Strategic and Local Plan producers must create collaborative partnerships with strategic stakeholders, transport service providers, and local communities that go far beyond statutory consultation (2).
- We must fully abandon predict and provide models of transport planning, and assess the Local Plan against health and well-being, lifestyle, and environmental criteria (including carbon emissions) – not just standard demographic and transport information (6).

10.4 The key to the success of bringing D&P into the local plan process is to establish close working relationships between the highways authority and the planning authority specialist teams. Continuous dialogue between the transport planners and the land use planners is recommended. The CIHT recognises this by simply stating that to create sustainable development, two key policy areas must work together: planning and transport (p.16, 3.7). This engagement between land use planners and transport planners needs to be two-way (p.33). The CIHT observes that this process can be constructive as (p.33):

> *"Communities that plan makers aspire to create often match the communities that transport planners favour – walkable, dense and well-served by local facilities and viable public transport services. The onus is on the LPA and the transport authority to build relationships and facilitate discussions that will bring about mutually favourable outcomes".*

10.5 Whilst strategic transport planners often work closely with the local plan/policy teams, development management teams' involvement is often limited in this process. This detachment from development management can cause difficulties later on in the process when a site has been allocated and all the assumptions surrounding the site allocation are not clearly documented. This issue was raised during the scoping interviews for the development of this Guidance. CIHT's Better planning, better transport, better places also recognises this issue:

- Within planning departments, transport specialists are rarely employed to support the development management function, and these teams generally have significantly less knowledge of and expertise in sustainable transport than traffic or highway issues. Further, a shift towards specialisation means that transport engineering has come to

focus on issues such as capacity, safety and time saving. Wider public objectives like emissions, health and well-being, and inclusivity are not considered key issues.

10.6 It is therefore recommended that development management teams (both highways and planning) are included in the development of the D&P approach at the earliest stage of the local plan making process. The travel demand assumptions and trend analysis need to be clearly documented for future reference.

11 | WHAT IS THE ROLE OF TRAVEL PLANNING IN D&P AND HOW DO WE MONITOR OUTCOMES?

Travel planning relates to the implementation of the transport strategy for a specific site or area. The key to creating a successful travel plan is to include clear outcomes and a timetable (or action plan) and to appoint a Travel Plan Coordinator to take responsibility for delivering it. Travel plans may be secured by way of planning conditions or section 106 planning obligations (S106).

11.1 Travel planning has an essential part to play within the D&P approach. Travel planning provides the mechanism for post implementation monitoring and, in the light of increasing uncertainty, understanding outcomes is all the more important. Travel planning helps inform scheme monitoring and can provide evidence as to whether the transport strategy is contributing towards the achievement of the stated vision, or whether it needs adapting. Specifically, travel plan monitoring can help inform how, and to what extent, the transport strategy is contributing to the achievement of net zero targets.

11.2 In the context of increasing uncertainty and the importance of building up an evidence base, monitoring outcomes is a fundamentally important aspect of the D&P approach. In short, there needs to be a far greater commitment to monitoring, with more monitoring taking place. It is therefore strongly recommended that a Monitoring and Evaluation Plan (MEP) is included in the TA to support the D&P approach. Without a robust MEP, the outcomes of D&P cannot be monitored, shared and used to further our knowledge of behavioural trends.

11.3 As noted above, given the levels of uncertainty surrounding future travel behaviour, flexibility in the delivery of the transport strategy needs to be reflected in the MEP and linked to the build out strategy for the site.

11.4 TRICS can support the delivery of site monitoring through its standard assessment methodology (SAM) survey process. The use of the SAM process not only supports the MEP process by its use of independent and standardised surveys, but it enables this information to feed into future projects and applications by updating travel trends and behaviours used to inform forecast scenarios. Section 22 of the latest version of the TRICS Good Practice Guide considers SAM in detail, including details of the Travel Plan Monitoring Report (TMPR) facility within TRICS.

11.5 Such an approach needs to be reflected in the S106 in the consent for the development to ensure that appropriate transport infrastructure is provided for the site at the relevant time. Transport infrastructure also needs to be secured in the MEP/S106 should the scenarios not play out as forecast.

11.6 The MEP should reflect the site build out and the timing of the monitoring and evaluation reports agreed with the relevant LPA and the highway authority. If transport outcomes have departed from the trajectories contained within the transport strategy, then the S106 must contain a mechanism to deal with the divergence from the agreed trip scenario.

11.7 As transport professionals, we are directly experiencing the paradigm shift to a new D&P approach. It can be uncomfortable moving on from familiar and ingrained ways of working and we can only learn by doing[10]. In this context, it is important that we share the lessons learned, as well as new data, with other practitioners. The dissemination of new knowledge, experience and case study outcomes will help address acknowledged research gaps and build a more solid evidence base.

10 Lyons, G. (2018). Handling uncertainty in transport planning and decision making - Report of a roundtable discussion held in London on 20 July 2018. Project Report. UWE Bristol. Available from: http://eprints.uwe.ac.uk/37926

12 | WHAT ARE THE IMPLICATIONS FOR S106 AND S278 AGREEMENTS?

The S106 agreement is a legal agreement that reflects the point at which planning permission is granted. The application of the CIL regulations 2012 is necessary to ensure the Obligations within the agreement are reasonable and directly connected the development. As a legal agreement the S106 cannot normally be varied after completion apart from by agreement between the landowner and the LPA. A limited ability to reset a S106 is possible under section 106A of the TCPA 1990 where an obligation has ceased to have a useful purpose.

12.1 This relative inflexibility does require the consideration of how the S106 can be framed to achieve the site vision with regards to transport and access and which can be responsive to the changing environment for transport that we currently see.

12.2 A S106 that is amenable to the D&P approach should include a schedule of transport interventions which respond to the trip generation (cited in the TA) and the forecast impacts. The S106 should include a monitoring and evaluation plan that includes defined monitoring periods corresponding to the schedule of transport interventions.

12.3 Should the monitoring and evaluation plan report demonstrate that the forecast trips have exceeded or indeed have not materialised then a revised schedule of transport interventions should be prepared and agreed with the planning and highway authority. In this regard the application of the monitoring regime and commitment in the obligation to follow the findings of the monitoring will be crucial to ensuring that the "decide" element is followed by "provide".

12.4 S278 is, in effect, a mechanism to allow work on the highway to take place funded by developers and contains a 'public interest test'. Planning consent is usually seen as a public benefit in this regard. The use of D&P to set the scope of the required highway works at the application stage offers the opportunity to optimise the works required.

12.5 The Planning White Paper has set out proposals for abolishing the current system of S106 planning obligations and its replacement with a new consolidated 'Infrastructure Levy'. The status of these proposals will be revisited in the future review of this Guidance.

PART TWO

13 | PART TWO INTRODUCTION

Part Two of the Guidance covers the practical application of the D&P approach.

13.1 The scoping interviews that were carried out as part of the development of the Guidance revealed that practitioners needed to understand how to apply the D&P approach to a range of types and scales of development. This section of the Guidance provides this advice.

13.2 Part Two is set out in ten sections:

- Section 14 covers the issue of understanding the vision for the site.
- Section 15 discusses understanding the quantum and mix of the proposed development and what that means for the D&P approach.
- Section 16 sets out how to use historic trends as the evidence base in the transport assessment for the proposed development.
- Section 17 discusses the use of current data from TRICS.
- Section 18 covers the application of future trends in the development of the proposed trip rates.
- Section 19 sets out the monitoring requirements.
- Section 20 provides a real-world example by examining the D&P approach taken for the proposed Kingswood/ Adversane development, which is currently going through the Local Plan process.
- Section 21 includes six worked or hypothetical examples for a range of land uses and scales of development.
- Section 22 provides a summary checklist for those practitioners who are either preparing or reviewing a TA or TS.
- Finally, Section 23 identifies a list of resources where you can find out more about D&P and related matters.

13.3 The latest version of the TRICS Good Practice Guide will continue to be an important document in directing practitioners in the use of TRICS. The TRICS website also provides further information and access to the TRICS Historic Trends Analysis Tool to support the D&P process.

14 | UNDERSTANDING THE VISION FOR THE PROPOSED DEVELOPMENT

Visioning is central to high quality place-making, creating better places to live, work and play. An upfront, clearly-stated place-making vision is an essential starting point. As such, there are three key questions that a plan or project needs to ask and meaningfully answer:

- What sort of place are we creating?
- What kind of activities do we need or desire to travel for?
- How will we provide for mobility?

14.1 Early engagement with the architects, master planners and land use planners, along with the client, is essential to understand what the vision for the site is. Even small-scale developments should have a vision which will support the overarching vision set out in the Local Plan.

14.2 Integral to creating a place-based vision is understanding how people will live and move and the development of a transport strategy to support this. The transport strategy should have clearly stated aims and objectives that sit within the overarching vision.

14.3 On-going discussions with the scheme's development team and with the relevant local authority is recommended. This will help to ensure that the vision is understood by all parties. The vision can then be subject to scenario planning, as required.

15 | UNDERSTANDING THE QUANTUM, SCALE AND MIX OF THE PROPOSED DEVELOPMENT

It would appear an obvious statement that the practitioner should understand the quantum, mix and scale of the development. However, it is not always the case that transport practitioners are involved in the early stages of the design principles for the proposed development.

15.1 Early engagement with the planning team is required so that transport practitioners influence the design and layout of the proposed development to ensure sustainable transport and appropriate parking for all modes is provided.

15.2 The quantum and mix of the proposed development will influence the development of the scenario planning for the scheme. The build out assumptions should be linked to the phasing of the development and these assumptions should be considered in the development of trip rates and the associated trip generation work.

15.3 Future phases of the proposed development may generate a different trip rate than the initial implementation phase and this needs to be reflected in the transport appraisal through scenario planning. An example of this approach can be seen in the real-world case study of Kingswood/Adversane in Section 20 of the Guidance.

15.4 By understanding the quantum and mix of the proposed development, practitioners can understand the population and community created by it. This can be represented in detailing in the transport appraisal the actual numbers, rather than percentages for the following sectors, as appropriate:

- Residents;
- Visitors;
- Employers, employees and business visitors;
- Pupils/students; and
- Shoppers.

15.5 The use of the actual numbers, rather than percentages, will support the understanding of the quantum of person trips likely to occur, and will support the development and use of total person trip rates for the proposed scheme. The use of actual numbers (rather than percentages) also serves as a sense check for the practitioner in the development of transport interventions. An example would be in the development of new public transport services, where it is necessary to know actual numbers of potential passengers. This knowledge can then be used to determine the quantum of new services that will be required to serve the development.

15.6 It will be important to understand the travel demand to and from the proposed development and it is recommended that a zone of influence is established and included in the transport appraisal.

15.7 The zone of influence will show the trip attractors outside the site, for example, schools, retail, employment, which will produce a demand for travel from the site. Trip attractors within the site will also draw trips in, which must also be taken into account and assumptions of the quantum of these trips included in the transport appraisal.

15.8 The potential internalisation rate can be identified by understanding the relationship between the quantum and mix of development and the vision. For example, the likelihood of residents on-site working on-site due to proximity and type of employment that is being provided may generate a high rate of internalisation. This can be seen in the real-world example of Kingswood/Adversane in Section 20.

15.9 The vision and quantum for the site needs to support the provision of critical mass for public transport services to be effective.

16 | USE OF HISTORIC DATA

To establish historic trip trends, it is necessary to undertake a separate TRICS analysis for various time slices (initial advice is 5 year periods but this may be amended if considered appropriate) using a consistent set of filtering parameters for each time slice. The attained information can then be combined into a spreadsheet whereby the individual trip rates for each classification can be compared throughout the individual time slices to create a graph showing how trip rates have changed over time.

16.1 The examination of Trip Rate Trends shows the observed travel behaviours from historic surveys and does not show what is going to happen in the future. The trends should be used to inform your forecasting scenarios.

16.2 While historic data analysis can track change in trip rates over time, those trip rates are still (significantly) a product of developments that are designed based upon historic trip rates – i.e. supply-led demand for motorised vehicles.

16.3 As seen in the previous TRICS Guidance Note on Changes in Travel Behaviour, issued in August 2019, the TRICS historic data review demonstrated that there has been a sustained change in travel behaviour. This change is reflected in the trip rates for residential, retail (supermarket food) and employment sites in the TRICS database.

16.4 TRICS Multi-Modal survey data are available from the year 2000, whilst TRICS Vehicle Only survey data are available from the 1990s up to the present day.

16.5 As part of the evidence showing the development of trip rates for the proposed site, a historic review should be undertaken using the TRICS Historic Trends Analysis Tool. This bespoke Excel spreadsheet has been produced to assist TRICS users in generating a graphical representation of Historic Trip Trends using data output from the TRICS database. This template spreadsheet includes an Instructions TAB to assist TRICS users.

16.6 To enable the spreadsheet to work, the TRICS user needs to undertake a number of Trip Rate Analyses using the TRICS Database to generate Vehicle Only Trip Rates and Multi-Modal Trip Rates for the chosen time slices as outlined below:

- Vehicle Only Trip Rate Output required for: Total Vehicles & Cycles.
- Multi-Modal Trip Rate Output required for: Total Vehicles, Cycles, Pedestrians, Public Transport & Total People.

16.7 The Historic Trend Analysis tool, in the form of a template Excel spreadsheet, can be accessed via the TRICS website. The tool can apply time slices of 5 Year periods (e.g. 1st January 2000 - 31st December 2004) to demonstrate changes in travel behaviour. Eight time slice TABs have been provided for each of the TRICS Outputs, Vehicles Only and Multi-Modal, to enable the user to amend the length of the time slice, if required.

16.8 As noted above, Multi-Modal data only goes back to the year 2000, so data before this time will only consist of Vehicle Only data. The day of assessment is also important in this process. Different travel patterns are seen when considering weekday to weekend data. This is particularly relevant to some retail uses which have experienced a sustained decline in weekday trip generation over the years, but growth in weekend trips.

16.9 It is recommended that, for the Historic Trend Analysis, the TRICS user goes back as far in time as possible when selecting survey sites. There can be an element of flexibility in the site filtering process, especially when looking at historic trends.

16.10 The Historic data provides the Excel spreadsheet and TRICS Outputs of the generalised filtering, the Current Trip Rate Analysis provides a more detailed filtering which should represent the development that is being considered.

16.11 It is suggested that TRICS users download both the raw TRICS survey data and the corresponding PDF files, as well as the raw Excel file, when undertaking the Historic Trend Analysis. When preparing and submitting transport appraisals, it is recommended that the PDFs of the TRICS Output and the Trends Output TAB summary sheet are included in the TA report or similar. If requested, a locked version of the raw Excel file could be provided to the LPA and/or relevant local highway authority.

17 | USE OF CURRENT TRICS DATA

To establish current trip rates, the process outlined in the latest TRICS Good Practice Guide should be followed. It should be noted the TRICS database is constantly being updated and new sites are surveyed, as well as repeat surveys for certain sites. Between the first and second lockdown in 2020 alone some 90 sites were surveyed across a range of land use categories.

17.1 Current trip rates illustrate travel behaviour that could take place should the development be built out within the immediate future, i.e. within 2 to 3 years of the date of the appraisal being completed without a transport strategy being implemented.

18 USE OF TRENDS FOR FORECASTING FUTURE TRIP RATES

TRICS is not a forecasting tool and therefore practitioners need to develop a set of trip rates based on the scenarios that have been developed for the proposed development. As discussed in Part One of this Guidance, the number of scenarios needed will be a matter of professional judgement. This Guidance considers that three different, plausible scenarios may be typically considered. For example:

- Scenario 1 – DfT Scenario 1 (Reference) using current trip rates taken from TRICS.
- Scenario 2 – DfT Scenario 6 (Extrapolated Trip Rates).
- Scenario 3 – DfT Scenario 6 (Extrapolated Trip Rates) using adjusted trip rates taken from TRICS which take account of increased internalisation, increased working from home and low/zero carbon initiatives.

18.1 When developing forecast scenarios, it is essential to be open and transparent and set out the assumptions used. Scenario testing should consider the implications of National forecast trends as well as the development site specific elements. Use of both RTF18 for national trends as well as TRICS' derived site specific trends, along with the site design should be considered when looking at various scenarios.

18.2 The consideration of different scenarios is an important part of the D&P approach and it allows all parties involved to consider the implications of both National and site specific forecast options. It is suggested that spreadsheet models are used initially to consider multiple scenarios. As the various options start to be considered using the spreadsheet modelling, it will become clearer which options are most plausible for the development site.

18.3 It is likely that a high number of small scale development assessments will only utilise one of the final forecasting options considered, that being the most likely scenario when taking the impact of the development into the final stages of assessment and onto design.

18.4 The most likely option would be considered fully and used to consider the safety implications and the design of mitigation measures for the development.

18.5 Larger sites or those that are particularly sensitive would most likely have a number of scenarios taken to this level of consideration. This would enable the use of legal agreements to apply differing design measures if a particular forecast scenario is shown to be met by post completion site monitoring.

18.6 As stated in the latest version of the TRICS Good Practice Guide, data initially generated by TRICS, prior to any factoring taking place, should first be presented (as TRICS data), and then the factored data presented subsequently (9.6). This practice is especially important so that data in TAs and similar documents can be audited correctly by a third party.

18.7 A Fan of Influence, as described in Part One of this Guidance, should be created that illustrates the historic trend for the proposed development; the current trip making for such a development and then the outcomes of the various plausible scenarios with transport strategies in place. This Fan of Influence will show the range of trip making that could be expected over the build-out of the development. This Fan of Influence should be reported in the TA or similar. The person trip rates secured by the transport strategy interventions that achieve the vision for the proposed development should be set out in the TA or equivalent.

18.8 The decision pathway that has been taken for deciding what to provide to achieve the vision for the site can be demonstrated through the use of the Fan of Influence and the results of the scenario planning. The TA or equivalent will need to include a statement of the impacts of the plausible scenarios that have been applied in the assessment.

18.9 It is important to state that the transport analysis and transport strategy interventions should demonstrate high quality place-making and meet the vision for the development. The trip reduction and management should not be seen as a cost savings exercise by the developer team.

18.10 The reporting of the trip generation of the proposed development needs to be accompanied by a transport strategy and monitoring and evaluation plan or MEP.

19 | DEVELOPING THE MEP

Part One of this Guidance has already strongly recommended that an MEP is included in the TA or equivalent to support the D&P approach.

19.1 The use of the TRICS SAM process can support and strengthen the MEP. This process allows for independent monitoring surveys with the provision of standardised and unbiased survey data that adds to the evidentiary base.

19.2 As an entity, TRICS is neither local highway authority nor developer and, as such, is an impartial monitor with no vested interest in the outcomes.

20 | REAL WORLD CASE STUDY: KINGSWOOD, ADVERSANE, HORSHAM, WEST SUSSEX

This section of the Guidance illustrates the approach of D&P through the use of the real-world case study of Kingswood/Adversane.

20.1 All the information presented in this case study is already in the public domain. It should be noted that the deployment of the D&P approach for this site commenced in 2018. This work obviously pre-dates the approach that is advocated in this Guidance, hence the lack of historical data analysis and the use of eight scenarios. Nevertheless, this real-world case study provides a useful example of the deployment of D&P.

20.2 The site is located south-east of, and close to, the existing hamlet of Adversane, between Billingshurst and Pulborough, in Horsham District in the County of West Sussex (the "Site"). A Site location plan is provided at **F 20.1**.

F 20.1 **Kingswood Site Location Plan**

Source: Kingswood Transport and Infrastructure Case (2019)

20.3 The draft version of the Horsham District Local Plan 2019-2036, also called the Regulation 18 Draft Plan, was published on the 17th February 2020 for consultation (the "Draft Local Plan"). The Draft Local Plan was prepared by Horsham District Council (HDC). This consultation process closed on the 30th March 2020. The final Submission Draft of the Local Plan (Regulation 19) is anticipated from February 2021.

20.4 Kingswood, Adversane, a proposal for around 3,500 dwellings and 3,500 jobs was submitted for site selection through this consultation process. This would be a sustainable new community which would provide all the necessary social infrastructure, including a new all-through school and an additional primary school, required to meet the needs of the new population and the surrounding area.

20.5 The High Street in Kingswood Village will be the focus for all retail and office provision, with offices and residential above the ground floor retail. Workshops and similar small workspaces will be provided in the same location, as

well as just off the High Street and around the railway crossing and Kingswood Works. These workshops and similar small workspaces can be successfully integrated into the village fabric, providing jobs within walking distance of where people live.

20.6 The anticipated timeline for the proposed delivery of Kingswood is an extended one, spanning some twenty-five years, with a 2043 completion date. It runs in parallel with, and extends beyond, the ongoing HDC Local Plan Review process, which looks ahead to 2036.

20.7 A Transport Strategy for Kingswood has been developed with a clearly stated aim, which is supported by ten objectives. The Transport Strategy's aim for Kingswood is to:

> *To support the community of Kingswood's access to work, education and community facilities by sustainable, low carbon travel infrastructure so that the majority of journeys that take place will be on foot or by bicycle, within the village itself, and by public and shared transport for shorter and longer journeys.*

20.8 The Transport Strategy's objectives for Kingswood are:

1. To provide a clear, legible hierarchy of streets which will allow permeability through the village, via the local high street and walkable neighbourhoods.
2. To provide high quality cycling and walking networks and infrastructure that provide access to work, commercial, community and education facilities.
3. To provide access to high quality public transport within 400m (5-minute walk) of Kingswood homes, community facilities and schools.
4. To provide access to shared vehicles and the provision of car clubs.
5. To support the use of electric vehicles and bicycles to reduce the environmental impacts associated with transport.
6. To provide sufficient levels of car and cycle parking within Kingswood that will support the sustainable transport strategy.
7. To safeguard land for a rail station and its associated access and other supporting infrastructure, should the demand arise in the future.
8. To support access to local centres by public transport and cycling facilities.
9. To improve safety for the increased number of pedestrians and cyclists, and those accessing the village by road, by reducing speed limits to 30mph (instead of 40mph) on the A29, B2133 and Marringdean Road.
10. To support Mobility as a Service (MaaS) through integrated journey planning for Kingswood residents and users.

20.9 The Vision for Kingswood Village and its supporting Transport Strategy are designed to enable and encourage maximum trip internalisation and take-up of sustainable low carbon travel modes.

20.10 To ensure high levels of accessibility, the Vision for Kingswood Village applies a five minutes' walk principle to the design and access provision. A five minutes' walk equates to a distance of approximately 400 metres to reach a local mixed-use High Street. An important component of village and town structuring is to place as many people as possible inside this radius, with density increasing towards the mixed-use centre. It encourages pedestrian and cycle movement and also necessitates an intricate grid of interconnected streets to best achieve that. Having undertaken an accessibility assessment, it can be demonstrated that more than 80% of homes will meet this five minutes' walk principle.

20.11 The safeguarding of land for a potential future railway station and associated uses, along with the proposed bus strategy, provides a step-change in public transport provision to meet the needs of the Site and the surrounding area.

20.12 Scenario planning was undertaken using eight plausible scenarios in total to understand the future transport and infrastructure requirements. Given that all the scenarios that have been examined are considered plausible, a range that details the impact of the development of Kingswood Village, from the 'traditional' "worse case" scenario to the most sustainable scenario are reported.

20.13 The following assessment years, and associated Kingswood Village development assumptions, have been used:

- Year 2030 - Early Years: 830 dwellings, 850 jobs, one primary school, 2 form entry (FE) secondary school pupils migrate off-site.
- Year 2036 - Mid-way Build Out: 2,310 dwellings, 2,000 jobs, one through school and one primary school.
- Year 2043 - Full Build Out or End State: 3,500 dwellings, 3,500 jobs, one through school and one primary school.

20.14 A series of Excel spreadsheet models were prepared to assess trip generation in the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) Peak time periods, disaggregating internal and external movements to and from the Kingswood Site for all travel modes and journey purposes by scenario.

20.15 All person trip by mode values given for total two-way person trips, i.e. arrivals and departures combined. The results of the scenario testing are shown below:

20.16 **Scenario 1: Worst Case Predict & Provide** for the AM Peak and PM Peak time periods respectively. This scenario assumes that 50% of residential to work trips are internal and 50% are external. As expected, the AM and PM Peak periods for the "worst case" "predict and provide" scenario exhibit higher levels of car use, with a total of 1,075 and 841 car driver trips respectively. However, walk trips are approximately double with a total of 2,217 and 1,488 walk trips in the AM and PM Peaks respectively. Scenario 1 also generates a total of 478 and 236 bus trips in the AM and PM Peaks, as well as 141 and 102 rail trips for the same time periods.

20.17 **Scenario 2: RTF18 Reference Case Deployed with Kingswood Full Build Out** for the AM Peak and PM Peak time periods respectively. This scenario assumes that 50% of residential to work trips are internal and 50% are external. Scenario 2 takes account of limited trends only and therefore results in a total of 913 and 766 car driver trips in the AM and PM Peak time periods respectively. However, walk trips are approximately double with a total of 2,072 and 1,437 walk trips in the AM and PM Peaks respectively. Scenario 2 also generates a total of 345 and 226 bus trips in the AM and PM Peaks, as well as 112 and 89 rail trips for the same time periods.

20.18 **Scenario 3: RTF18 Scenario 6 Applied to Kingswood Full Build Out** for the AM Peak and PM Peak time periods respectively. This scenario assumes that 50% of residential to work trips are internal and 50% are external. Scenario 3 takes account of trends and results in a total of 789 and 651 car driver trips in the AM and PM Peak time periods respectively. Walk trips are significant with a total of 1,779 and 1,245 walk trips in the AM and PM Peaks respectively. Scenario 3 also generates a total of 308 and 193 bus trips in the AM and PM Peaks, as well as 97 and 76 rail trips for the same time periods.

20.19 **Scenario 4:RTF18 Scenario 6 Applied to Kingswood Full Build Out with High Sustainability Assumptions** for the AM Peak and PM Peak time periods respectively. This scenario assumes that 60% of residential to work trips are internal and 40% are external. Scenario 4 takes account of trends with high sustainability assumptions and results in a total of 707 and 570 car driver trips in the AM and PM Peak time periods respectively. This is a significant reduction from the car driver levels identified for the "worst case" "predict and provide" Scenario 1 above. Walk trips are significant with a total of 1,823 and 1,295 walk trips in the AM and PM Peaks respectively. Scenario 4 also generates a total of 289 and 174 bus trips in the AM and PM Peaks, as well as 80 and 62 rail trips for the same time periods. Scenario 4 generates a total of 189 and 190 cycle trips in the AM and PM Peaks respectively.

20.20 **Scenario 5: Early Years (2030) Using RTF18 Reference Case and Decide & Provide** for the AM Peak and PM Peak time periods respectively. This scenario assumes that 40% of residential to work trips are internal and 60% are external. Scenario 5 takes generates a total of 267 and 211 car driver trips in the AM and PM Peak time periods respectively. However, walk trips exceed car usage with a total of 483 and 331 walk trips in the AM and PM Peaks respectively. Scenario 5 also generates a total of 108 and 66 bus trips in the AM and PM Peaks, as well as 39 and 32 rail trips for the same time periods.

20.21 **Scenario 6: Mid-way Build Out (2036)** for the AM and PM Peak time periods respectively. This scenario assumes that 50% of residential to work trips are internal and 50% are external.

20.22 **Scenario 7: Mid-way Build Out with Higher Internalisation** for the AM and PM Peak time periods respectively. Scenario 7 assumes that 55% of residential to work trips are internal and 45% are external, i.e. slightly higher internalisation relative to Scenario 6.

20.23 Scenarios 6 and 7 exhibit broadly similar travel demands, with a total of 534 and 509 car trips in the AM Peak for Scenario 6 and Scenario 7 respectively. This pattern is repeated in the PM Peak, with a total of 416 (Scenario 6) and 391 (Scenario 7) car trips. AM Peak walk trips are 1,162 and 1,178 for Scenarios 6 and 7 respectively and are also similar across the PM Peak, with 810 (Scenario 6) and 828 (Scenario 7) walk trips. AM Peak bus use for Scenario 6 (234) and Scenario 7 (228) is also similar. Finally, AM rail use for both scenarios is comparable, with 75 rail trips for Scenario 6 and 69 rail trips for Scenario 7.

20.24 **Scenario 8: Kingswood Implementation End State with 50% Internalisation** for the AM Peak and PM Peak time periods respectively. This scenario assumes that 50% of residential to work trips are internal and 50% are external. Scenario 8 has a lower level of internalisation relative to Scenario 4 above.

20.25 Scenario 8 results in a total of 789 and 651 car driver trips in the AM and PM Peak time periods respectively. This is also a significant reduction from the car driver levels identified for the "worst case" "predict and provide" Scenario 1 above. Walk trips are significant with a total of 1,779 and 1,245 walk trips in the AM and PM Peaks respectively. Scenario 8 also generates a total of 308 and 193 bus trips in the AM and PM Peaks, as well as 97 and 76 rail trips for the same time periods. Scenario 8 generates a total of 187 cycle trips in both the AM and PM Peaks.

20.26 The peak hour vehicle trips generated by the Kingswood spreadsheet models were distributed and assigned to the highway network in order to assess the potential highway impacts of Kingswood Village. Operational assessments identified the impact of the trip generation associated with Kingswood Village, or the Proposed Development, on the surrounding road network.

20.27 The following plausible scenarios were assessed:

- 2018 Base;
- 2043 Base + Committed Development (Tempro);
- 2043 Base + Committed Development + Kingswood Scenario 1;
- 2043 Base + Committed Development (RTF6); and
- 2043 Base + Committed Development + Kingswood Scenario 8.

20.28 A spreadsheet model was applied to all the scenarios. Through this screening, two development scenarios were then taken forward to the detailed design and full assessment stages.

20.29 The summary results for the Site accesses and off-site junctions were presented and details of the proposed mitigation, where considered necessary, were presented. Potential off-site measures for enhancing bus and cycle access to and from the Site at Kingswood Village have been identified.

20.30 The travel planning process forms an integral part of the envisaged stewardship and long-term management of Kingswood Village. The Travel Plan for Kingswood will comprise of a Strategic Travel Plan for the whole Site which will include the mode share targets, as set out in the Kingswood Transport Strategy.

20.31 It will then include a series of Residential Travel Plans (one for each of the planned residential build outs, therefore a Travel Plan up to 2030 and another Travel Plan for 2036) and School Travel Plans that support meeting the overall mode share for Kingswood.

20.32 These types of Travel Plans will have their own set of objectives to support residents and users of Kingswood Village. Monitoring regimes will be drawn up to ensure that the identified highways impacts (as documented in the report) are effectively mitigated against.

20.33 It should be noted that a key aspect of Kingswood is the supply-led approach to the proposed development, which ensures the parallel provision of community facilities as well as residential properties.

21 WORKED EXAMPLES

It is acknowledged that at present there are a limited number of real-world case studies, where the D&P approach has been fully applied to planning of new developments, that are sufficiently advanced and in the public domain[11]. This is anticipated to change, and more real-world case studies will be reflected in future guidance as the D&P approach is taken up more widely and suitable schemes emerge.

21.1 The Guidance has, therefore, developed a series of hypothetical or worked examples to assist the TRICS user. The TRICS parameters for these six worked examples are set out below. Corresponding individual descriptions and visions for these examples are developed in turn below in this section of the Guidance.

1. Food Retail Store – about 6,000 m² gross floor area (GFA), located in an Edge of Town, Suburban, Neighbourhood Area.
2. Discount Food Retail – about 1,500 m² GFA, located in a more Town Centre, Edge of Town Centre, Suburban Area.
3. Large Residential – 300+ Houses in an Urban Extension. Edge of Market Town or similar, inclusive of a primary school and some retail provision and employment, but primarily residential in use.
4. Pure Medium Residential – 50 to 100 Dwellings Large Infill or Extension to a more Rural location.
5. Residential Brown Field Site – 150-200 Dwellings within Large Town mixed use with flats/apartments and Houses. Industrial Estate conversion to Residential.
6. Small Residential – 25-50 Flats/Apartments, low car ownership. Larger Town/City Centre conversion of Offices.

21.2 The purpose of the worked examples is to provide the practitioner with a workflow/pathway for the process of applying D&P in their transport assessment. Specific answers to each of the worked examples are not provided, but rather the practitioner is invited to follow the process.

WORKED EXAMPLE NO. 1: FOOD RETAIL STORE

Description & Vision

21.3 The TRICS parameters for Worked Example No. 1 comprise approximately 6,000m2 GFA of Food Superstore, located in an Edge of Town, Suburban, Neighbourhood Area.

21.4 The application site is located to the south of a market town and comprises of arable land intended for development. The proposed site is bounded to the north and west by a major A-road and to the north is the market town. The proposed development consists of a food retail store, 600 car parking spaces, a petrol filling station (PFS) and a service yard.

21.5 The vision for the development is to follow best practice regarding the sustainable design and management of energy and its associated CO_2 emissions. The site offers the opportunity for supporting a sustainable transport strategy by providing online delivery services and cycling facilities for visitors and employees.

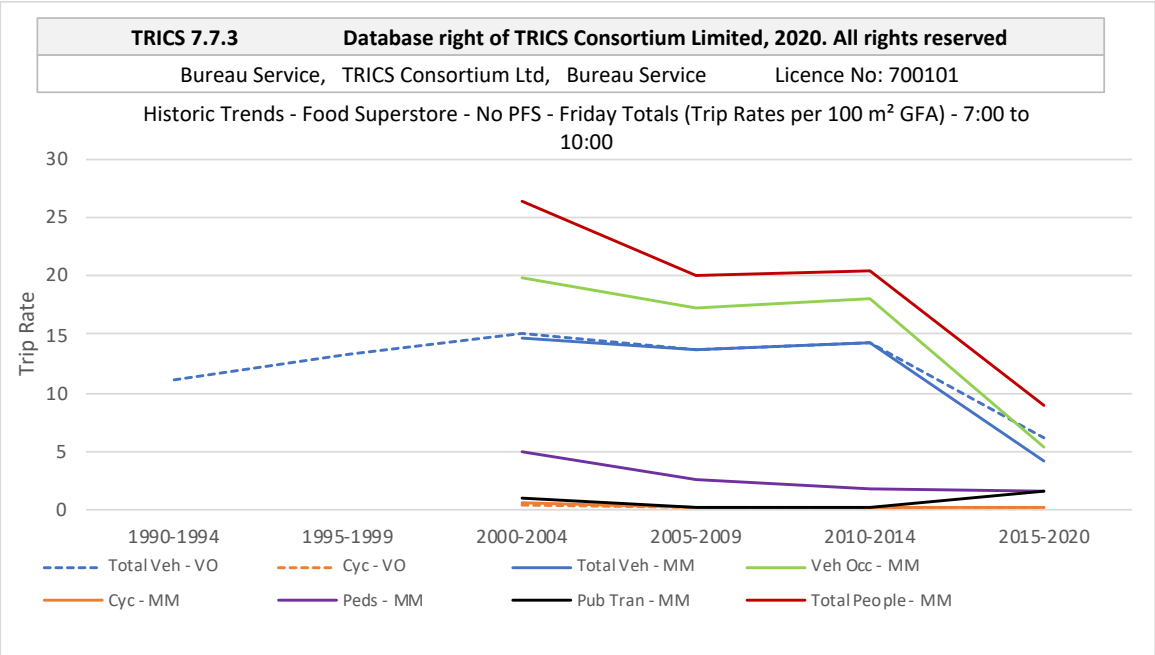
11 A growing number of applications of decide and provide can be found in strategic transport planning and policymaking across transport authorities including the Department for Transport, Transport Scotland and Transport for the North, as well as city and city region authorities.

Recommended Approach

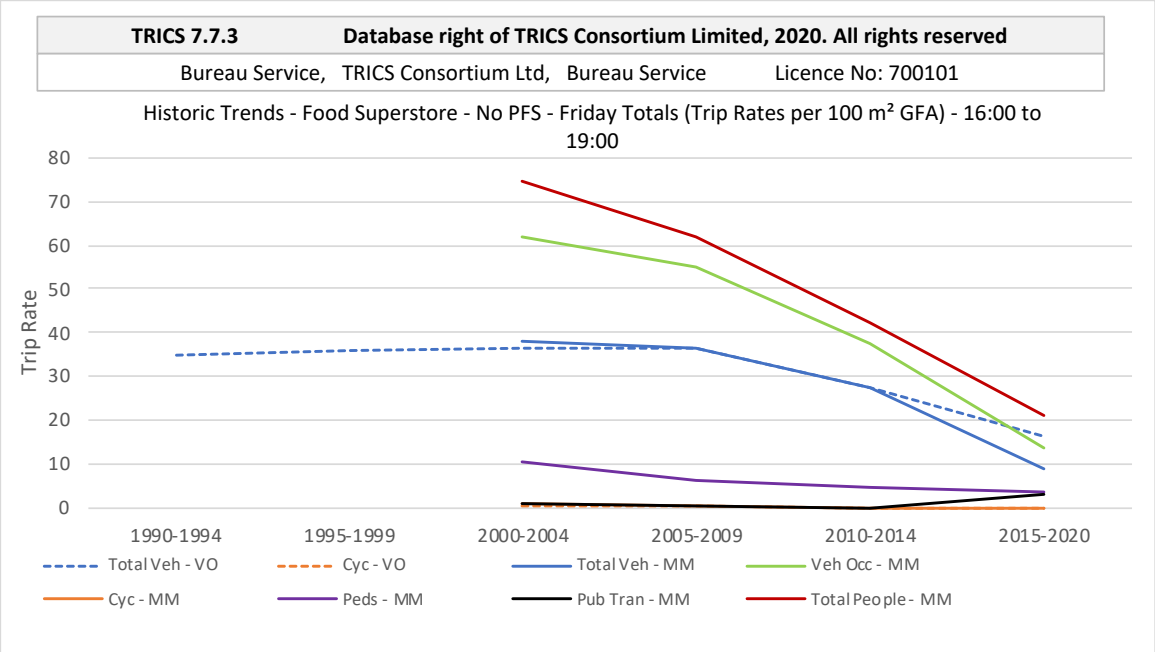
21.6 Historic Trend Analysis has been undertaken for both Friday and Saturday to outline whether different trends have been observed through the 30 years of data available with the TRICS Database. Due to the large number of surveys contained within the database for this particular use, it has been possible to undertake the Historic Trend Analysis using very similar parameters to those that are used for the Current Trip Rate Analysis, these being Food Superstores with a GFA range of between 2,000m² and 10,000m². The site locations were restricted to Suburban, Edge of Town and Neighbourhood Centres, as this reflected the proposed development's location. Care needs to be taken to remove Neighbourhood Centre sites in rural locations, as these would not reflect the site location.

21.7 **F 21.1** and **F 21.2** show the recorded historic trends for the extended Friday AM peak period of 07:00 to 10:00 and the PM peak period of 16:00 to 19:00. A 5-year time slice was used in this instance, the spreadsheet used to undertake this analysis produces both tabulated information and graphs, this enables the user to undertake detailed analysis, where necessary.

F 21.1 **Historic Trend Analysis – Example 1 – Friday – AM Period – Total Trips**



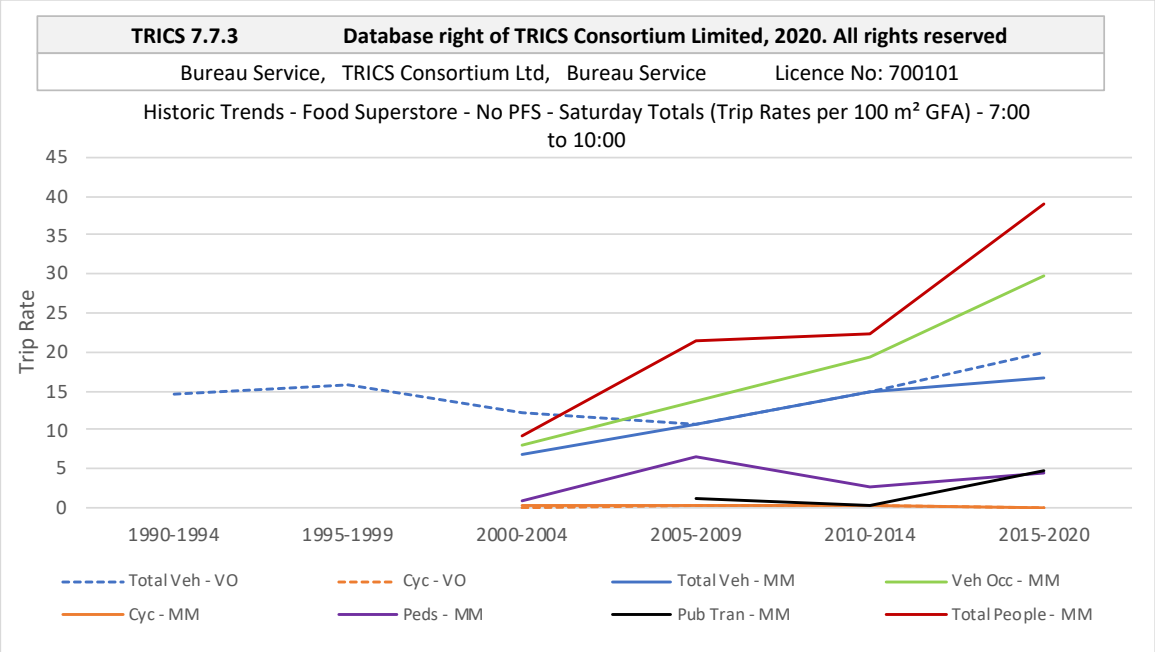
F 21.2 **Historic Trend Analysis – Example 1 – Friday – PM Period – Total Trips**



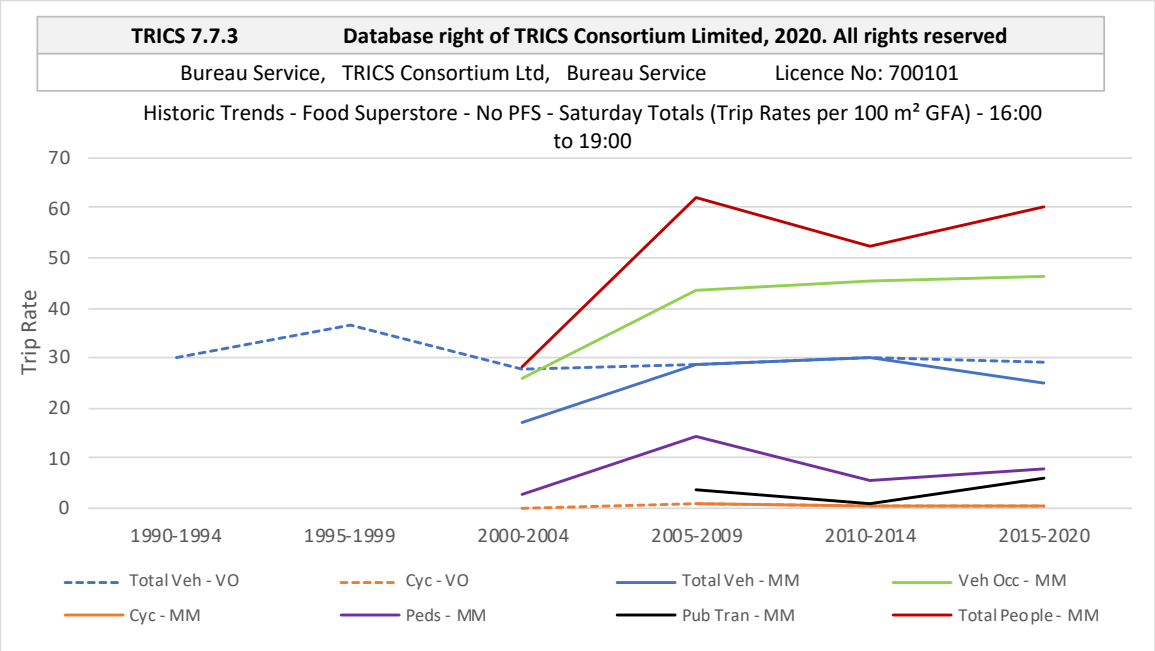
21.8 It can be observed from the TRICS data that the trend for the weekday is vehicular and people trips reducing over time, with non-vehicular trips starting to flatten out over the most recent years and public transport having an increase in the past 5 years.

21.9 **F 21.3** and **F 21.4** show the recorded historic trends for the extended Saturday AM peak period of 07:00 to 10:00 and the PM peak period of 16:00 to 19:00, using a 5-year time slice.

F 21.3 **Historic Trend Analysis – Example 1 – Saturday – AM Period – Total Trips**



F 21.4 **Historic Trend Analysis: Example 1 – Saturday – PM Period – Total Trips**



21.10 It can be observed from the TRICS data that the trend for Saturday is different to the weekday, with vehicular trips being reasonably consistent, although with some increase in the AM period over the past 10 years, with non-vehicular trips generally rising. The most prominent increase is in the total people visiting food superstores in the AM period. The use of total flows and these time periods is for the purposes of this Guidance and it is up to the author of the report to decide what time periods, direction of flow and time slices are examined.

21.11 Current Trip Rate Analysis has been undertaken using the TRICS Database. **T 21.5** & **T 21.6** summarises the Friday and Saturday Total Trip Rates for the last 8 years using Multi-Modal Trip Rates for the proposed development. The Current Trip Rate Analysis is undertaken as per the **TRICS Good Practice Guide** and would include all outputs and assumptions within the TA. It would be best practice to include summary tables and information for both Arrivals and Departures when undertaking a TA or other similar report. However, for the purposes of this Guidance detailed information has been kept to a minimum, where possible, to reduce information overload.

21.12 The figures below would then be used to create an analysis of the proposed development if constructed using currently observed travel behaviours. Analysis of the impact of vehicular and non-vehicular movements should be undertaken to assess capacity and safety implications of all modes.

T 21.5 Current Trip Rate Analysis – Example 1 – Friday –Total Trips

TRICS 7.7.3	DATABASE RIGHT OF TRICS CONSORTIUM LIMITED, 2021. ALL RIGHTS RESERVED											
BUREAU SERVICE, TRICS CONSORTIUM LIMITED										LICENCE NO: 700101		
TRIP RATE for Land Use 01 - RETAIL/A - FOOD SUPERSTORE												
Calculation Factor: 100 sqm												
Trip Rate - Totals												
Time Range	TOTAL VEHICLES	TAXIS	OGVS	PSVS	CYCLISTS	VEHICLE OCCUPANTS	PEDESTRIANS	BUS/TRAM PASSENGERS	TOTAL RAIL PASSENGERS	COACH PASSENGERS	PUBLIC TRANSPORT USERS	TOTAL PEOPLE
00:00-01:00												
01:00-02:00												
02:00-03:00												
03:00-04:00												
04:00-05:00												
05:00-06:00												
06:00-07:00	0.487	0.020	0.010	0.000	0.081	0.589	0.426	0.091	0.000	0.000	0.091	1.188
07:00-08:00	2.051	0.052	0.033	0.007	0.032	2.424	0.387	0.055	0.003	0.002	0.060	2.904
08:00-09:00	3.754	0.061	0.048	0.002	0.047	4.415	0.858	0.093	0.010	0.005	0.109	5.429
09:00-10:00	5.261	0.140	0.039	0.012	0.057	6.518	0.997	0.160	0.012	0.004	0.176	7.748
10:00-11:00	6.217	0.137	0.040	0.007	0.050	8.168	1.310	0.219	0.012	0.007	0.238	9.765
11:00-12:00	7.003	0.112	0.047	0.008	0.046	9.488	1.379	0.208	0.015	0.004	0.227	11.141
12:00-13:00	7.228	0.139	0.049	0.009	0.074	9.612	1.803	0.248	0.014	0.018	0.280	11.769
13:00-14:00	6.806	0.115	0.042	0.014	0.056	9.067	1.661	0.223	0.013	0.029	0.266	11.051
14:00-15:00	7.210	0.127	0.044	0.022	0.059	9.523	1.425	0.182	0.011	0.041	0.232	11.240
15:00-16:00	7.459	0.135	0.038	0.001	0.071	10.163	1.787	0.181	0.015	0.013	0.209	12.231
16:00-17:00	7.133	0.105	0.030	0.010	0.086	9.741	1.840	0.154	0.019	0.035	0.208	11.875
17:00-18:00	7.339	0.094	0.029	0.005	0.070	10.035	1.652	0.125	0.016	0.011	0.152	11.908
18:00-19:00	6.957	0.074	0.027	0.004	0.117	9.872	1.647	0.082	0.008	0.000	0.090	11.726
19:00-20:00	5.635	0.043	0.027	0.008	0.066	8.050	1.270	0.057	0.008	0.010	0.075	9.460
20:00-21:00	3.865	0.042	0.015	0.004	0.045	5.477	0.866	0.058	0.001	0.054	0.113	6.502
21:00-22:00	2.595	0.035	0.012	0.004	0.040	3.625	0.486	0.022	0.003	0.054	0.078	4.230
22:00-23:00	0.096	0.010	0.000	0.000	0.011	0.116	0.227	0.037	0.016	0.000	0.053	0.408
23:00-24:00												
Daily Trip Rates:	87.096	1.441	0.530	0.117	1.008	116.883	20.021	2.195	0.176	0.287	2.657	140.575

T 21.6 Current Trip Rate Analysis – Example 1 – Saturday –Total Trips

TRICS 7.7.3	DATABASE RIGHT OF TRICS CONSORTIUM LIMITED, 2021. ALL RIGHTS RESERVED														
BUREAU SERVICE, TRICS CONSORTIUM LIMITED											LICENCE NO: 700101				
TRIP RATE for Land Use 01 - RETAIL/A - FOOD SUPERSTORE															
Calculation Factor: 100 sqm															
Trip Rate - Totals															
Time Range	TOTAL VEHICLES	TAXIS	OGVS	PSVS	CYCLISTS	VEHICLE OCCUPANTS	PEDESTRIANS	BUS/TRAM PASSENGERS	TOTAL RAIL PASSENGERS	COACH PASSENGERS	PUBLIC TRANSPORT USERS	TOTAL PEOPLE	CARS	LGVS	MOTOR CYCLES
00:00-01:00															
01:00-02:00															
02:00-03:00															
03:00-04:00															
04:00-05:00															
05:00-06:00															
06:00-07:00	1.604	0.000	0.012	0.000	0.000	2.060	0.069	0.019	0.000	0.000	0.019	2.149	1.334	0.257	0.000
07:00-08:00	2.464	0.028	0.053	0.000	0.012	3.126	0.181	0.032	0.001	0.000	0.033	3.351	1.509	0.207	0.013
08:00-09:00	4.939	0.039	0.028	0.001	0.029	6.553	0.419	0.089	0.002	0.000	0.091	7.093	2.934	0.276	0.013
09:00-10:00	8.022	0.057	0.025	0.003	0.046	11.775	0.691	0.177	0.005	0.000	0.181	12.695	4.841	0.317	0.023
10:00-11:00	10.902	0.112	0.010	0.000	0.058	16.730	1.051	0.297	0.002	0.000	0.300	18.138	6.526	0.316	0.033
11:00-12:00	12.148	0.100	0.006	0.002	0.066	19.105	1.287	0.301	0.002	0.002	0.306	20.764	7.219	0.341	0.024
12:00-13:00	12.187	0.097	0.025	0.000	0.080	19.531	1.485	0.387	0.005	0.000	0.391	21.486	7.202	0.334	0.036
13:00-14:00	11.723	0.095	0.021	0.000	0.101	18.758	1.437	0.348	0.002	0.000	0.350	20.646	6.964	0.352	0.052
14:00-15:00	11.500	0.100	0.009	0.002	0.081	18.272	1.308	0.305	0.002	0.002	0.310	19.972	6.821	0.367	0.056
15:00-16:00	11.399	0.130	0.022	0.000	0.108	18.365	1.409	0.318	0.002	0.000	0.321	20.203	6.753	0.356	0.047
16:00-17:00	11.109	0.101	0.025	0.002	0.069	17.842	1.300	0.278	0.000	0.000	0.278	19.488	6.558	0.342	0.054
17:00-18:00	10.402	0.119	0.012	0.003	0.088	16.479	1.067	0.169	0.001	0.002	0.173	17.806	6.242	0.323	0.050
18:00-19:00	8.333	0.066	0.012	0.001	0.064	12.774	0.992	0.117	0.000	0.001	0.118	13.949	4.937	0.249	0.033
19:00-20:00	5.597	0.037	0.015	0.000	0.071	8.690	0.687	0.078	0.000	0.000	0.078	9.526	3.497	0.193	0.027
20:00-21:00	3.260	0.036	0.004	0.002	0.032	4.794	0.464	0.045	0.000	0.004	0.050	5.340	1.829	0.101	0.011
21:00-22:00	1.528	0.016	0.008	0.000	0.028	2.319	0.300	0.015	0.000	0.000	0.015	2.663	0.893	0.107	0.004
22:00-23:00	0.463	0.000	0.000	0.000	0.000	0.682	0.075	0.050	0.000	0.000	0.050	0.808	0.420	0.044	0.000
23:00-24:00															
Daily Trip Rates:	127.580	1.133	0.287	0.016	0.933	197.855	14.222	3.025	0.024	0.011	3.064	216.077	76.479	4.482	0.476

Scenario Planning

21.13 For this type of proposed development, it is suggested that two scenarios for determining trip generation should be created. Historic trends should be included and illustrated against the TRICS current trip rates (scenario 1) and, Scenario 6 (Extrapolated Trip Rates) (scenario 2).

21.14 Extrapolated Trip Rates (Scenario 6) recognises the uncertainty in future trip rates and extrapolates this recent trend (2011 to 2016) in trip rates to 2050 to understand how this might impact on traffic growth. RTF18 Table 2: Growth in Forecasted Trips (total) illustrates the change in trip rates which can be taken into account in the forecasting of trips for the development.

21.15 A Fan of Influence showing the trip generation change in travel behaviour – historic, current and scenario trip rates over time should be created and included in the transport appraisal.

WORKED EXAMPLE NO. 2: DISCOUNT FOOD RETAIL

Description & Vision

21.16 The TRICS parameters for Worked Example No. 2 comprise approximately 1,500m2 GFA, located in a more Town Centre, Edge of Town Centre, Suburban Area.

21.17 The site is currently a vacant, disused plot that forms an 'unattractive' feature within the area. The proposed development would bring this brownfield site back into use, making the overall area more attractive.

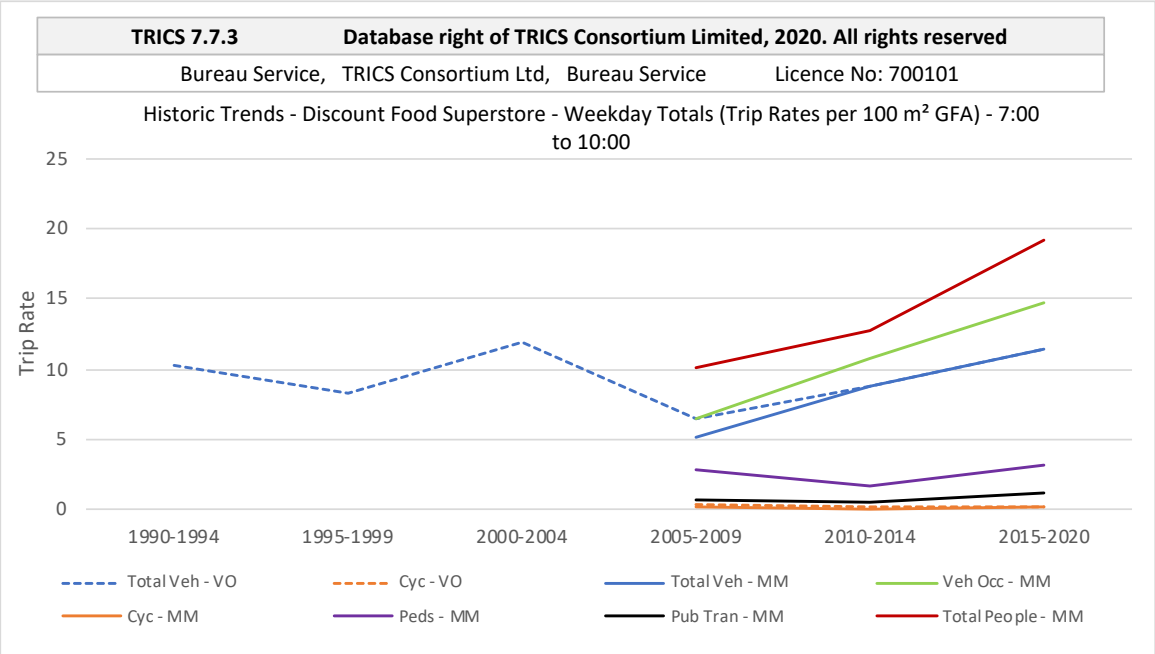
21.18 The vision for the development is that it will be accessible for all, with sufficient disabled, parent and child spaces along with bicycle racks and EV charging facilities.

Recommended Approach

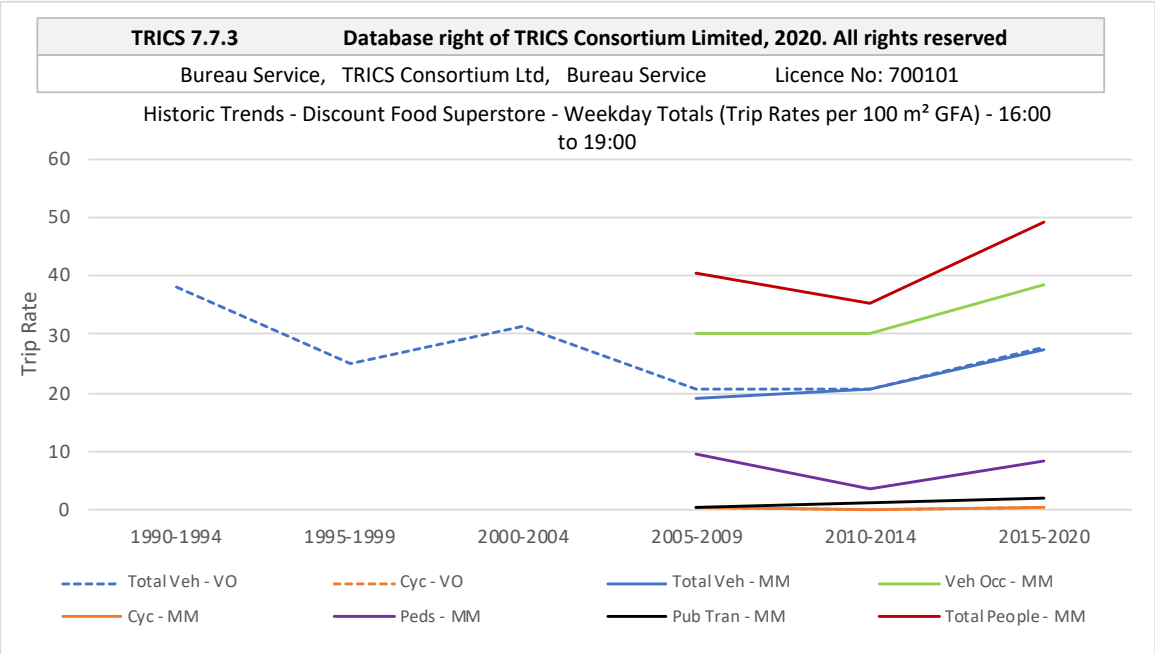
21.19 Historic Trend Analysis has been undertaken for both Weekday and Saturday to outline whether different trends have been observed through the 30 years of data available with the TRICS Database. Due to the large number of surveys contained within the database for this particular use, it has been possible to undertake the Historic Trend Analysis using very similar parameters to those that are used for the Current Trip Rate Analysis, these being Discount Food Superstores with a GFA range of between 700m² and 2,750m². The site locations were restricted to Town Centre, Edge of Town and Suburban, as this reflected the proposed development's location. Care needs to be taken to remove any "Suburban Area" sites that do not reflect the development site location. The Suburban Area category is very broad in terms of the TRICS definition, so sites within this group could cover a wide variety of locations within a town or city (from near the edge to near the edge of centre). For this worked example a balance between sample size and inclusion criteria has been considered as it was necessary to deviate from the Good Practice Guide on the compatibility of location types in order to secure the necessary sample size. Therefore, the individual sites within the Suburban Area category were examined for their acceptability for the purposes of the Historic Trends calculations.

21.20 **F 21.7** and **F 21.8** show the recorded historic trends for extended Weekday AM peak period of 07:00 to 10:00 and the PM peak period of 16:00 to 19:00. A 5-year time slice was used in this instance, the spreadsheet used to undertake this analysis produces both tabulated information and graphs, this enables the user to undertake detailed analysis, where necessary.

F 21.7 **Historic Trend Analysis – Example 2 – Weekday – AM Period – Total Trips**



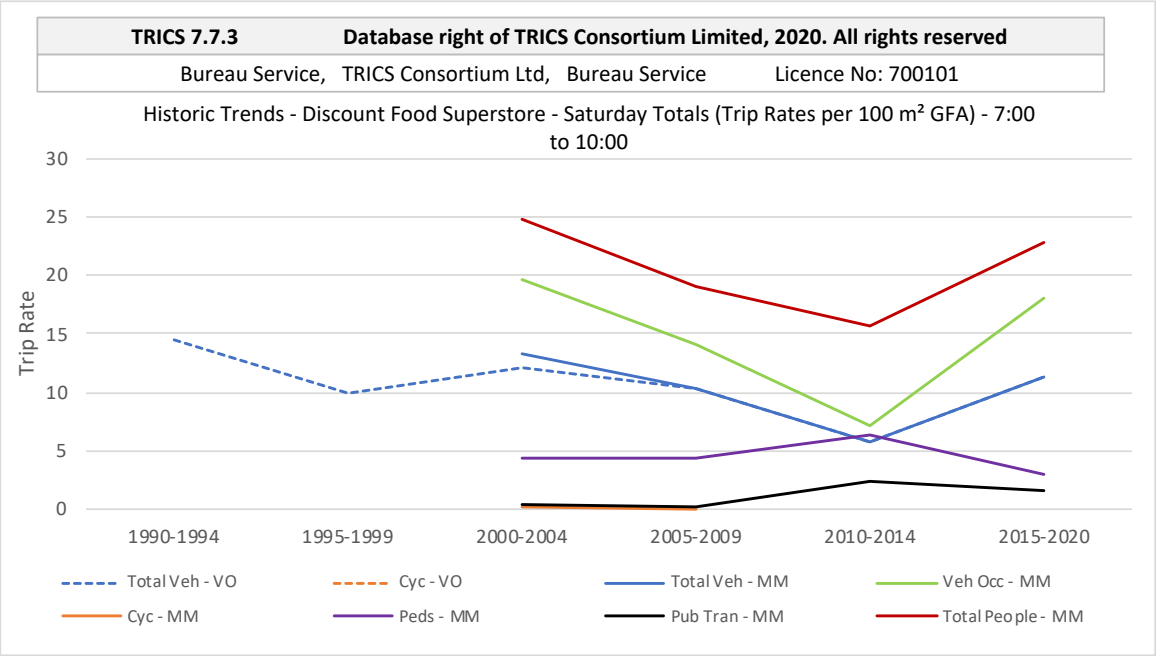
F 21.8 **Historic Trend Analysis – Example 2 – Weekday – PM Period – Total Trips**



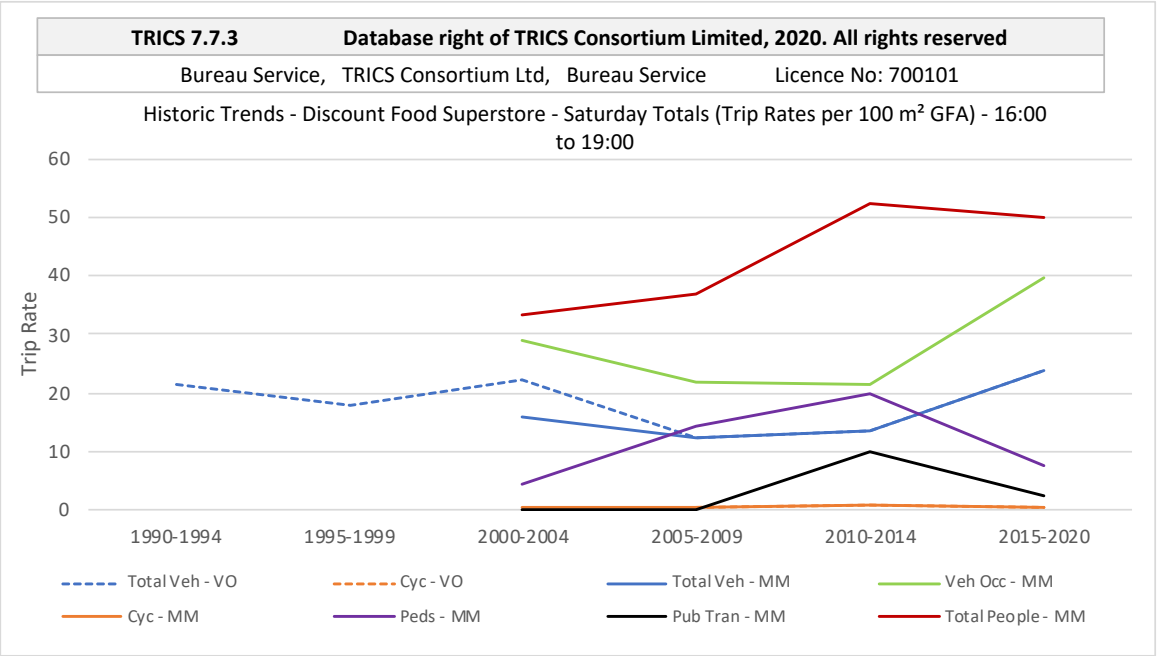
21.21 It can be observed from the TRICS data that the trend for the weekday is vehicular and people trips increasing over time.

21.22 **F 21.9** and **F 21.10** show the recorded historic trends for extended Saturday AM peak period of 07:00 to 10:00 and the PM peak period of 16:00 to 19:00, using a 5-year time slice.

F 21.9 **Historic Trend Analysis – Example 2 – Saturday – AM Period – Total Trips**



F 21.10 **Historic Trend Analysis – Example 2 – Saturday – PM Period – Total Trips**



21.23 It can be observed from the TRICS data that the trend for Saturday is different to the weekday, with vehicular occupancy increasing over the last 5 years, total vehicle trips increasing and non-vehicular trips decreasing. Total person trips appear to have risen during the weekday and are fluctuating during Saturdays, depending upon the time period. The use of total flows and these time periods is for the purposes of this Guidance and it is up to the author of the report to decide what time periods, direction of flow and time slices are examined.

21.24 Current Trip Rate Analysis has been undertaken using the TRICS Database. **T 21.11** and **T 21.12** summarises the Weekday Total Trip Rates for the last 8 years using Multi-Modal Trip Rates for the proposed development. The Current Trip Rate Analysis is undertaken as per the TRICS Good Practice Guide and would include all outputs and assumptions within the TA. It would be best practice to include summary tables and information for both Arrivals and Departures when undertaking a TA or other similar report. However, for the purposes of this Guidance detailed information has been kept to a minimum, where possible, to reduce information overload.

21.25 The figures below would then be used to create an analysis of the proposed development if constructed using currently observed travel behaviours. Analysis of the impact of vehicular and non-vehicular movements should be undertaken to assess capacity and safety implications of all modes.

T 21.11 Current Trip Rate Analysis – Example 2 – Weekday –Total Trips

TRICS 7.7.3	DATABASE RIGHT OF TRICS CONSORTIUM LIMITED, 2021. ALL RIGHTS RESERVED													
BUREAU SERVICE, TRICS CONSORTIUM LIMITED										LICENCE NO: 700101				
TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES														
Calculation Factor: 100 sqm														
Trip Rate - Totals														
Time Range	TOTAL VEHICLES	TAXIS	OGVS	PSVS	CYCLISTS	VEHICLE OCCUPANTS	PEDESTRIANS	BUS/TRAM PASSENGERS	TOTAL RAIL PASSENGERS	PUBLIC TRANSPORT USERS	TOTAL PEOPLE	CARS	LGVS	MOTOR CYCLES
00:00-01:00														
01:00-02:00														
02:00-03:00														
03:00-04:00														
04:00-05:00														
05:00-06:00														
06:00-07:00	0.199	0.000	0.020	0.000	0.020	0.199	0.239	0.100	0.000	0.100	0.558	0.159	0.020	0.000
07:00-08:00	0.569	0.000	0.015	0.003	0.009	0.707	0.150	0.067	0.003	0.070	0.937	0.499	0.036	0.003
08:00-09:00	3.772	0.019	0.017	0.003	0.104	4.855	0.860	0.234	0.028	0.262	6.081	3.418	0.245	0.011
09:00-10:00	6.125	0.048	0.065	0.009	0.090	8.137	1.473	0.371	0.022	0.395	10.095	5.477	0.347	0.019
10:00-11:00	7.444	0.040	0.037	0.000	0.133	10.459	1.868	0.411	0.020	0.431	12.890	6.765	0.346	0.003
11:00-12:00	8.754	0.028	0.048	0.000	0.096	12.329	2.519	0.436	0.020	0.456	15.400	8.106	0.322	0.022
12:00-13:00	9.131	0.062	0.025	0.000	0.084	12.873	2.787	0.329	0.014	0.344	16.088	8.436	0.336	0.040
13:00-14:00	8.940	0.079	0.043	0.003	0.130	12.338	2.434	0.405	0.014	0.420	15.321	8.112	0.406	0.031
14:00-15:00	9.143	0.037	0.028	0.011	0.138	13.034	2.077	0.378	0.009	0.386	15.634	8.396	0.347	0.022
15:00-16:00	9.554	0.020	0.022	0.000	0.160	13.730	2.293	0.366	0.014	0.381	16.564	8.793	0.392	0.031
16:00-17:00	9.785	0.048	0.028	0.000	0.138	13.930	2.240	0.375	0.017	0.392	16.700	8.951	0.448	0.051
17:00-18:00	8.920	0.071	0.014	0.000	0.189	12.704	2.085	0.299	0.028	0.327	15.304	8.162	0.440	0.056
18:00-19:00	7.473	0.059	0.022	0.000	0.146	10.631	1.580	0.257	0.037	0.293	12.651	6.909	0.324	0.017
19:00-20:00	5.748	0.037	0.014	0.000	0.073	8.103	0.997	0.155	0.017	0.172	9.346	5.291	0.304	0.019
20:00-21:00	3.960	0.033	0.021	0.000	0.100	5.478	1.030	0.125	0.009	0.134	6.741	3.612	0.234	0.012
21:00-22:00	1.772	0.030	0.015	0.000	0.029	2.395	0.582	0.082	0.009	0.090	3.097	1.574	0.126	0.003
22:00-23:00	0.268	0.000	0.004	0.000	0.011	0.421	0.111	0.019	0.000	0.019	0.562	0.250	0.015	0.000
23:00-24:00														
Daily Trip Rates:	**101.557**	**0.611**	**0.438**	**0.029**	**1.650**	**142.323**	**25.325**	**4.409**	**0.261**	**4.672**	**173.969**	**92.910**	**4.688**	**0.340**

T 21.12 Current Trip Rate Analysis – Example 2 – Saturday –Total Trips

TRICS 7.7.3	DATABASE RIGHT OF TRICS CONSORTIUM LIMITED, 2021. ALL RIGHTS RESERVED													
BUREAU SERVICE, TRICS CONSORTIUM LIMITED										LICENCE NO: 700101				
TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES														
Calculation Factor: 100 sqm														
Trip Rate - Totals														
Time Range	TOTAL VEHICLES	TAXIS	OGVS	PSVS	CYCLISTS	VEHICLE OCCUPANTS	PEDESTRIANS	BUS/TRAM PASSENGERS	TOTAL RAIL PASSENGERS	PUBLIC TRANSPORT USERS	TOTAL PEOPLE	CARS	LGVS	MOTOR CYCLES
00:00-01:00														
01:00-02:00														
02:00-03:00														
03:00-04:00														
04:00-05:00														
05:00-06:00														
06:00-07:00	0.299	0.000	0.040	0.000	0.020	0.299	0.319	0.080	0.000	0.080	0.717	0.259	0.000	0.000
07:00-08:00	0.570	0.008	0.024	0.000	0.028	0.869	0.227	0.064	0.012	0.076	1.199	0.461	0.077	0.000
08:00-09:00	3.652	0.028	0.018	0.000	0.085	5.650	0.791	0.213	0.025	0.238	6.764	3.400	0.195	0.011
09:00-10:00	6.206	0.026	0.009	0.000	0.109	9.516	1.129	0.319	0.035	0.353	11.107	5.924	0.234	0.012
10:00-11:00	10.676	0.065	0.012	0.003	0.169	16.309	2.182	0.472	0.015	0.488	19.148	10.266	0.315	0.012
11:00-12:00	13.808	0.075	0.015	0.003	0.169	21.199	2.660	0.606	0.022	0.629	24.656	13.286	0.381	0.047
12:00-13:00	13.799	0.082	0.009	0.003	0.122	21.745	2.964	0.526	0.015	0.541	25.372	13.380	0.254	0.072
13:00-14:00	13.480	0.106	0.012	0.000	0.153	21.793	2.570	0.594	0.009	0.604	25.119	12.993	0.335	0.035
14:00-15:00	12.439	0.038	0.026	0.003	0.119	20.589	2.839	0.578	0.016	0.594	24.141	11.929	0.400	0.044
15:00-16:00	11.264	0.082	0.028	0.006	0.113	18.329	2.566	0.400	0.009	0.410	21.418	10.816	0.300	0.038
16:00-17:00	9.441	0.073	0.006	0.000	0.136	15.794	2.232	0.331	0.027	0.358	18.520	9.077	0.282	0.003
17:00-18:00	7.971	0.028	0.008	0.000	0.152	13.482	2.204	0.330	0.018	0.348	16.187	7.623	0.288	0.025
18:00-19:00	6.001	0.060	0.004	0.000	0.135	9.767	1.757	0.220	0.029	0.249	11.906	5.696	0.234	0.008
19:00-20:00	4.191	0.063	0.011	0.000	0.131	6.916	1.178	0.156	0.018	0.174	8.401	3.908	0.196	0.014
20:00-21:00	2.353	0.094	0.022	0.000	0.112	3.685	1.130	0.146	0.026	0.172	5.099	2.091	0.127	0.018
21:00-22:00	1.268	0.034	0.007	0.000	0.071	1.990	0.617	0.056	0.014	0.071	2.749	1.119	0.101	0.007
22:00-23:00	0.288	0.000	0.000	0.000	0.009	0.390	0.185	0.025	0.000	0.025	0.609	0.275	0.013	0.000
23:00-24:00														
Daily Trip Rates:	**117.706**	**0.862**	**0.251**	**0.018**	**1.833**	**188.322**	**27.550**	**5.116**	**0.290**	**5.410**	**223.112**	**112.503**	**3.732**	**0.346**

Scenario Planning

21.26 For this type of proposed development, it is suggested that two scenarios for determining trip generation should be created. Historic trends should be included and illustrated against the TRICS current trip rates (scenario 1) and, Scenario 6 (Extrapolated Trip Rates) (scenario 2).

21.27 Extrapolated Trip Rates (Scenario 6) recognises the uncertainty in future trip rates and extrapolates this recent trend (2011 to 2016) in trip rates to 2050 to understand how this might impact on traffic growth. RTF18 Table 2: Growth in

Forecasted Trips (total) illustrates the change in trip rates which can be taken into account in the forecasting of trips for the development.

WORKED EXAMPLE NO. 3: LARGE RESIDENTIAL

Description & Vision

21.28 The TRICS parameters for Worked Example No. 3 comprise 300+ Dwellings in an Urban Extension, Edge of Market Town or similar. The proposed development is inclusive of a primary school and some retail provision and employment, but primarily residential in use.

21.29 This worked example consists of a residential development of approximately 300 dwellings, a neighbourhood centre to include community and retail uses, a primary school, public open space, play areas, a Riverside County Park and new footpath links. This site is situated on the edge of an existing town.

21.30 The vision for the proposed development is to provide a high quality environment which promotes a healthy life style with access to open space. The development will support active travel through providing walking and cycling facilities to the town centre. The site will also provide links to existing public transport services. Employment and comparative retail will be provided by the existing town and further afield in the conurbation.

21.31 The site will provide for nursery and primary education. Secondary education facilities will be provided in the existing town.

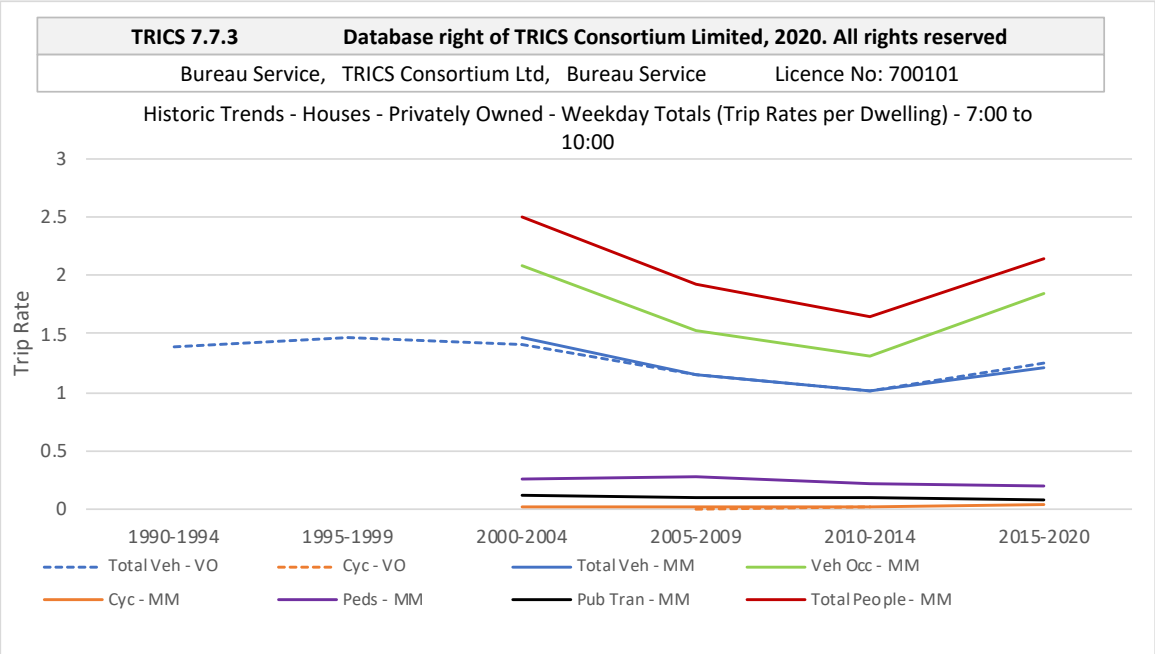
Recommended Approach

21.32 Historic Trend Analysis has been undertaken for Weekday only to outline whether different trends have been observed through the 30 years of data available with the TRICS Database. Due to the complexity of the site, it has been decided to concentrate upon the largest element of the development for the purposes of Historic Trend Analysis, that being the Houses Privately Owned. The site locations were restricted to Suburban, Edge of Town and Neighbourhood Centre, as this reflected the proposed development's location. Care needs to be taken to remove Neighbourhood Centre sites in rural locations, as these would not reflect the site location.

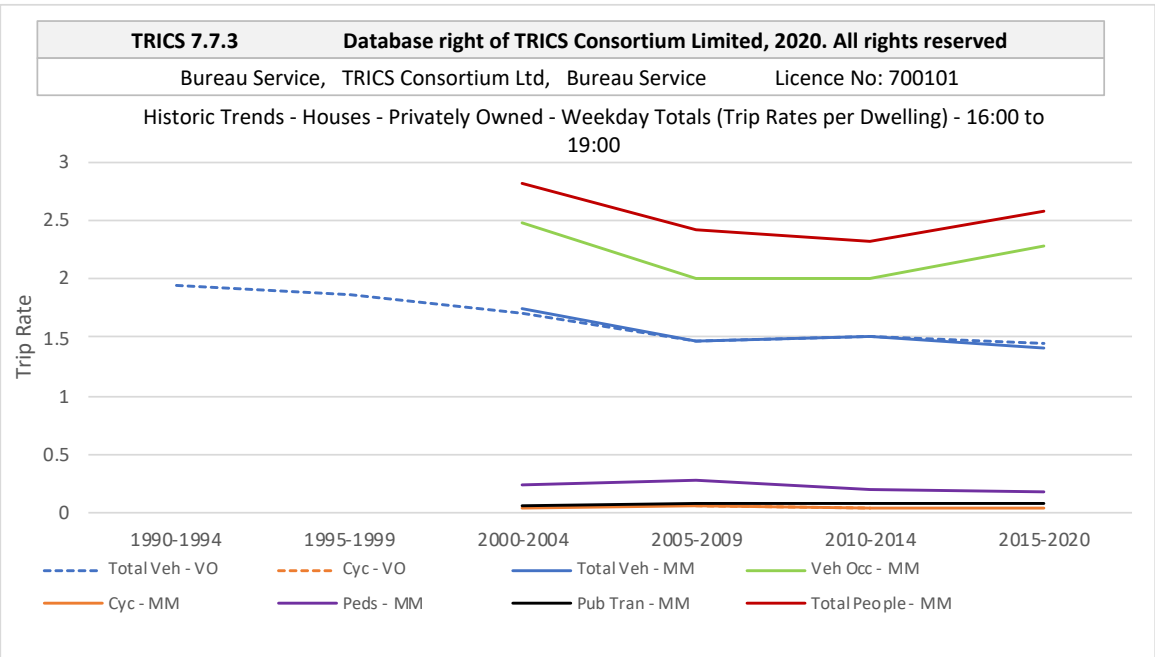
21.33 **F 21.13**, **F 21.14** and **F 21.15** show the recorded historic trends for Weekday AM peak period of 07:00 to 10:00, the PM peak period of 16:00 to 19:00 and the 12-hour period of 07:00 to 19:00. A 5-year time slice was used in this instance, the spreadsheet used to undertake this analysis produces both tabulated information and graphs, this enables the user to undertake detailed analysis, where necessary.

21.34 It can be observed within the TRICS data that the trend for a reduction in Total People seems to be changing over the past 5 years. The AM Peak Period total vehicles seems to be on a rise again, whereas the PM Peak Period and 12-Hour figures show a continued reduction. A more detailed examination of the AM Peak Period would be recommended if this were to be submitted as part of a planning application, this would then enable examination of single hour data to see if evidence of specific changes in behaviour could be seen. The use of total flows and these time periods is for the purposes of this Guidance and it is up to the author of the report to decide what time periods, direction of flow and time slices are examined.

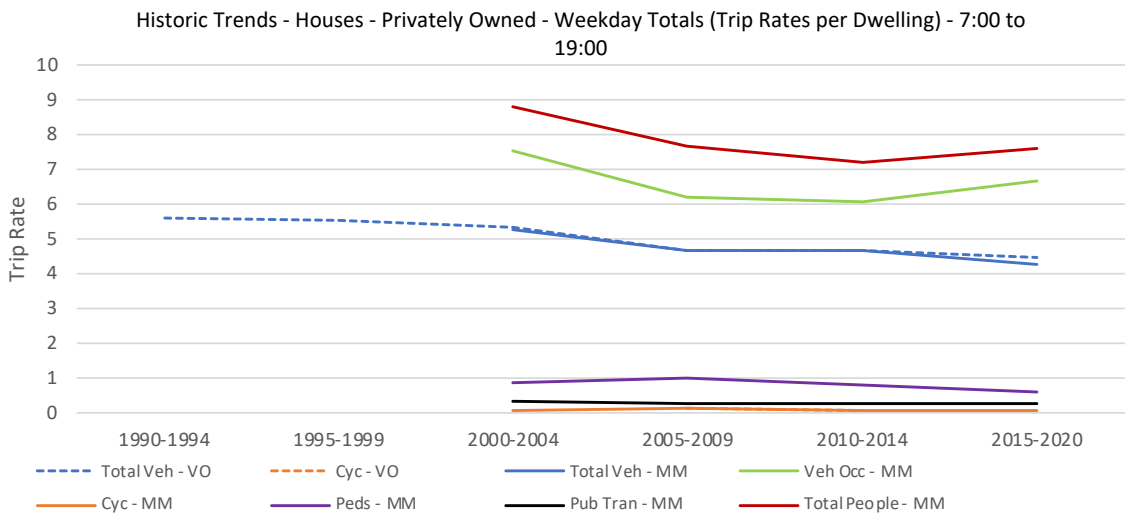
F 21.13 Historic Trend Analysis – Example 3 – Weekday – AM Period – Total Trips



F 21.14 Historic Trend Analysis – Example 3 – Weekday – PM Period – Total Trips



F 21.15 **Historic Trend Analysis – Example 3 – Weekday – 12 Hour Period – Total Trips**



21.35 Current Trip Rate Analysis has been undertaken using the TRICS Database. **T 21.16**, and **T 21.17** summarises the Weekday Total Trip Rates for the various land-uses that make up the proposed development, the latest 8 years TRICS surveys using Multi-Modal Trip Rates have been selected. The Current Trip Rate Analysis is undertaken as per the TRICS Good Practice Guide and would include all outputs and assumptions within the TA. It would be best practice to include summary tables and information for both Arrivals and Departures when undertaking a TA or other similar report. However, for the purposes of this Guidance detailed information has been kept to a minimum, where possible, to reduce information overload.

T 21.16 **Current Trip Rate Analysis – 03/A Residential – Example 3 –Total Trip**

TRICS 7.7.3	DATABASE RIGHT OF TRICS CONSORTIUM LIMITED, 2021. ALL RIGHTS RESERVED														
BUREAU SERVICE, TRICS CONSORTIUM LIMITED										LICENCE NO: 700101					
TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED															
Calculation Factor: 1 DWELLS															
Trip Rate - Totals															
Time Range	TOTAL VEHICLES	TAXIS	OGVS	PSVS	CYCLISTS	VEHICLE OCCUPANTS	PEDESTRIANS	BUS/TRAM PASSENGERS	TOTAL RAIL PASSENGERS	COACH PASSENGERS	PUBLIC TRANSPORT USERS	TOTAL PEOPLE	CARS	LGVS	MOTOR CYCLES
00:00-01:00															
01:00-02:00															
02:00-03:00															
03:00-04:00															
04:00-05:00															
05:00-06:00															
06:00-07:00															
07:00-08:00	0.360	0.002	0.001	0.002	0.008	0.514	0.043	0.020	0.004	0.000	0.024	0.589	0.278	0.032	0.003
08:00-09:00	0.519	0.006	0.006	0.002	0.017	0.825	0.096	0.024	0.004	0.003	0.031	0.968	0.381	0.034	0.003
09:00-10:00	0.297	0.003	0.005	0.002	0.004	0.414	0.035	0.013	0.002	0.000	0.015	0.468	0.203	0.032	0.000
10:00-11:00	0.230	0.002	0.006	0.002	0.003	0.328	0.035	0.009	0.002	0.000	0.011	0.377	0.149	0.028	0.000
11:00-12:00	0.234	0.002	0.003	0.000	0.004	0.335	0.026	0.010	0.001	0.000	0.011	0.376	0.156	0.026	0.001
12:00-13:00	0.292	0.002	0.005	0.000	0.004	0.407	0.025	0.008	0.000	0.000	0.008	0.445	0.188	0.028	0.000
13:00-14:00	0.277	0.001	0.003	0.002	0.002	0.389	0.034	0.010	0.001	0.000	0.010	0.435	0.183	0.027	0.002
14:00-15:00	0.337	0.005	0.004	0.002	0.004	0.475	0.045	0.012	0.001	0.001	0.013	0.537	0.215	0.029	0.003
15:00-16:00	0.406	0.006	0.005	0.002	0.008	0.650	0.076	0.024	0.004	0.001	0.029	0.762	0.270	0.034	0.002
16:00-17:00	0.429	0.004	0.003	0.002	0.016	0.692	0.054	0.026	0.002	0.000	0.028	0.791	0.300	0.035	0.004
17:00-18:00	0.534	0.004	0.002	0.002	0.013	0.810	0.052	0.018	0.005	0.000	0.023	0.898	0.385	0.034	0.004
18:00-19:00	0.479	0.002	0.002	0.000	0.011	0.744	0.063	0.017	0.003	0.000	0.020	0.839	0.358	0.023	0.003
19:00-20:00															
20:00-21:00															
21:00-22:00															
22:00-23:00															
23:00-24:00															
Daily Trip Rates:	**4.394**	**0.039**	**0.045**	**0.018**	**0.094**	**6.583**	**0.584**	**0.191**	**0.029**	**0.005**	**0.223**	**7.485**	**3.066**	**0.362**	**0.025**

T 21.17 Current Trip Rate Analysis – 04/A Primary School - Example 3 –Total Trips

TRICS 7.7.3	DATABASE RIGHT OF TRICS CONSORTIUM LIMITED, 2021. ALL RIGHTS RESERVED														
BUREAU SERVICE, TRICS CONSORTIUM LIMITED										LICENCE NO: 700101					
TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY															
Calculation Factor: 1 PUPILS															
Trip Rate - Totals															
Time Range	TOTAL VEHICLES	TAXIS	OGVS	PSVS	CYCLISTS	VEHICLE OCCUPANTS	PEDESTRIANS	BUS/TRAM PASSENGERS	TOTAL RAIL PASSENGERS	COACH PASSENGERS	PUBLIC TRANSPORT USERS	TOTAL PEOPLE	CARS	LGVS	MOTOR CYCLES
00:00-01:00															
01:00-02:00															
02:00-03:00															
03:00-04:00															
04:00-05:00															
05:00-06:00															
06:00-07:00															
07:00-08:00	0.091	0.000	0.000	0.000	0.004	0.119	0.028	0.001	0.000	0.000	0.002	0.153	0.064	0.003	0.000
08:00-09:00	0.451	0.002	0.000	0.000	0.027	0.460	0.911	0.125	0.015	0.000	0.141	1.540	0.328	0.007	0.000
09:00-10:00	0.076	0.001	0.000	0.000	0.002	0.079	0.131	0.025	0.003	0.027	0.055	0.267	0.037	0.004	0.000
10:00-11:00	0.026	0.001	0.000	0.000	0.000	0.028	0.033	0.000	0.000	0.000	0.000	0.062	0.015	0.003	0.000
11:00-12:00	0.027	0.000	0.000	0.000	0.000	0.029	0.021	0.001	0.000	0.000	0.002	0.052	0.017	0.004	0.000
12:00-13:00	0.039	0.000	0.000	0.000	0.001	0.039	0.068	0.009	0.000	0.000	0.009	0.116	0.023	0.004	0.000
13:00-14:00	0.045	0.000	0.000	0.000	0.001	0.050	0.052	0.011	0.000	0.000	0.011	0.115	0.024	0.006	0.000
14:00-15:00	0.065	0.000	0.000	0.000	0.001	0.046	0.093	0.014	0.000	0.000	0.014	0.154	0.041	0.004	0.000
15:00-16:00	0.343	0.002	0.000	0.000	0.022	0.340	0.827	0.102	0.025	0.027	0.154	1.342	0.272	0.003	0.000
16:00-17:00	0.198	0.000	0.000	0.000	0.009	0.249	0.151	0.033	0.004	0.000	0.037	0.447	0.117	0.003	0.000
17:00-18:00	0.069	0.000	0.000	0.000	0.004	0.089	0.028	0.001	0.000	0.000	0.001	0.123	0.032	0.001	0.000
18:00-19:00	0.043	0.000	0.000	0.000	0.000	0.056	0.012	0.000	0.000	0.000	0.000	0.068	0.020	0.000	0.000
19:00-20:00															
20:00-21:00															
21:00-22:00															
22:00-23:00															
23:00-24:00															
Daily Trip Rates:	**1.473**	**0.006**	**0.000**	**0.000**	**0.071**	**1.584**	**2.355**	**0.322**	**0.047**	**0.054**	**0.426**	**4.439**	**0.990**	**0.042**	**0.000**

T 21.18 Current Trip Rate Analysis – 01/O Convenience Store - Example 3 –Total Trips

TRICS 7.7.3	DATABASE RIGHT OF TRICS CONSORTIUM LIMITED, 2021. ALL RIGHTS RESERVED											
BUREAU SERVICE, TRICS CONSORTIUM LIMITED										LICENCE NO: 700101		
TRIP RATE for Land Use 01 - RETAIL/O - CONVENIENCE STORE												
Calculation Factor: 100 sqm												
Trip Rate - Totals												
Time Range	TOTAL VEHICLES	TAXIS	OGVS	PSVS	CYCLISTS	VEHICLE OCCUPANTS	PEDESTRIANS	BUS/TRAM PASSENGERS	TOTAL RAIL PASSENGERS	COACH PASSENGERS	PUBLIC TRANSPORT USERS	TOTAL PEOPLE
00:00-01:00												
01:00-02:00												
02:00-03:00												
03:00-04:00												
04:00-05:00												
05:00-06:00												
06:00-07:00	4.866	0.000	0.162	0.000	0.730	5.434	4.623	0.000	0.000	0.000	0.000	10.786
07:00-08:00	12.643	0.344	0.518	0.000	0.833	14.741	11.321	0.287	0.115	0.000	0.402	27.299
08:00-09:00	13.419	0.373	0.402	0.000	0.920	16.925	17.356	0.747	0.029	0.000	0.776	35.977
09:00-10:00	10.747	0.172	0.287	0.000	0.488	12.759	16.264	0.661	0.000	0.000	0.661	30.173
10:00-11:00	11.092	0.316	0.172	0.000	0.517	12.557	19.137	1.035	0.058	0.000	1.092	33.304
11:00-12:00	11.408	0.230	0.172	0.000	0.460	14.368	22.356	0.661	0.000	0.000	0.661	37.844
12:00-13:00	13.994	0.431	0.114	0.000	0.517	16.696	29.512	0.891	0.000	0.000	0.891	47.615
13:00-14:00	10.575	0.201	0.114	0.000	0.431	12.615	31.494	0.747	0.000	0.000	0.747	45.287
14:00-15:00	13.190	0.287	0.000	0.000	0.661	15.058	26.293	1.035	0.029	0.000	1.063	43.075
15:00-16:00	14.253	0.287	0.058	0.000	0.690	18.248	32.500	0.834	0.029	0.000	0.863	52.299
16:00-17:00	15.805	0.230	0.000	0.000	1.494	20.488	31.437	0.460	0.029	0.000	0.488	53.908
17:00-18:00	16.810	0.114	0.058	0.000	1.178	21.293	29.224	1.897	0.345	0.000	2.241	53.937
18:00-19:00	19.684	0.316	0.000	0.000	1.437	25.546	30.718	0.891	0.201	0.000	1.092	58.793
19:00-20:00	14.367	0.201	0.000	0.058	0.719	17.673	27.184	0.258	0.058	1.034	1.350	46.925
20:00-21:00	7.497	0.126	0.000	0.000	0.376	9.880	18.413	0.188	0.000	0.000	0.188	28.858
21:00-22:00	5.019	0.062	0.000	0.000	0.628	6.336	14.837	0.062	0.000	0.000	0.062	21.863
22:00-23:00	4.478	0.000	0.000	0.000	0.000	6.397	0.000	0.000	0.000	0.000	0.000	6.397
23:00-24:00												
Daily Trip Rates:	**199.847**	**3.690**	**2.057**	**0.058**	**12.079**	**247.014**	**362.669**	**10.654**	**0.893**	**1.034**	**12.577**	**634.340**

21.36 The above figures would then be used to create an analysis of the proposed development to examine currently observed travel behaviours. Analysis of the impact of vehicular and non-vehicular movements should be undertaken to assess capacity and safety implications of all modes.

Scenario Planning

21.37 With regards to scenario planning for this proposed development, the Reference Case NTEM 7.2, (RTF18) Extrapolated Trip Rates (Scenario 6) (RTF18) and Changes in Technology (Scenario 7) (RTF18), TRICS current trip rate and proposed build out and phasing for the proposed development should be included in the evaluation of the trip generation for the proposed site.

21.38 A Fan of Influence should be produced illustrating the historic trend data, the TRICS current trip rate and the trip rates for the various scenarios as outlined above. This should then be included in the transport appraisal. It is feasible that a range of trip rates is proposed that change over time as the development is built out. These trip rates need to be subject to monitoring and evaluation. The monitoring and evaluation plan or MEP will form part of the Section 106.

WORKED EXAMPLE NO. 4: PURE MEDIUM RESIDENTIAL

Description & Vision

21.39 The TRICS parameters for Worked Example No. 4 comprise 50 to 100 Dwellings, Large Infill or Extension to a more Rural Location

21.40 This worked example is located at the edge of a rural village. The proposal is for up to 90 residential dwellings, including up to 35% affordable housing, a community shop and landscaping with a new vehicular, pedestrian accesses and provision of site infrastructure.

21.41 The vision for this development is to support local housing provision. Access to the village will be provided through enhanced pedestrian facilities along the main route to the village.

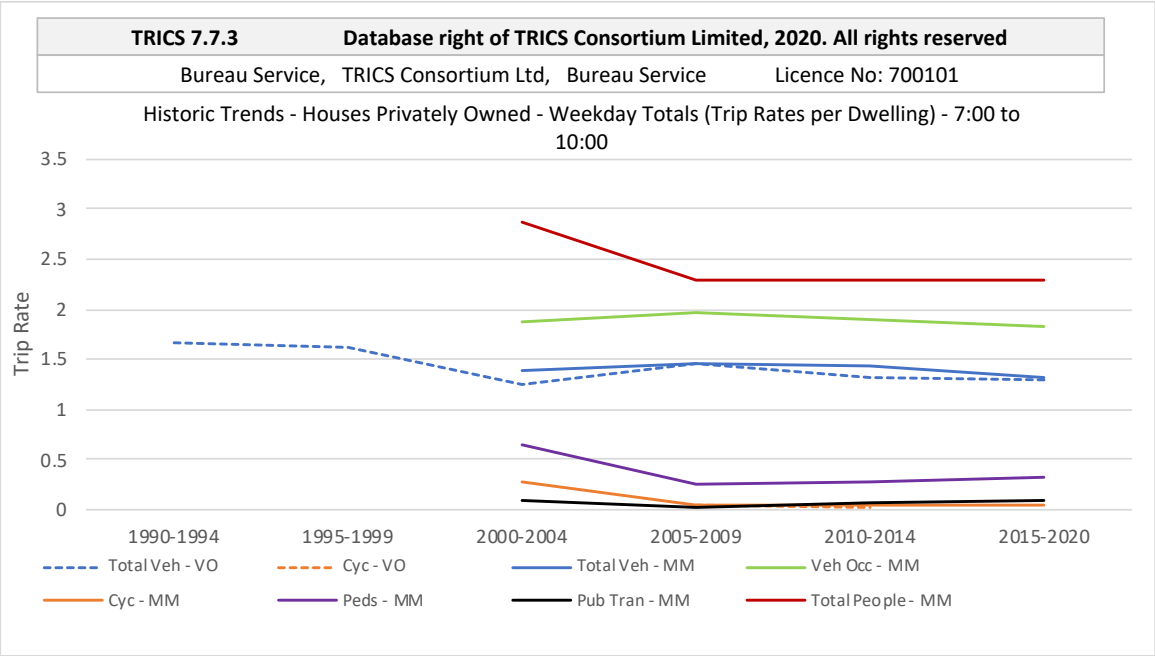
21.42 Primary education needs will be met by the local village and secondary education will be provided by the county town.

Recommended Approach

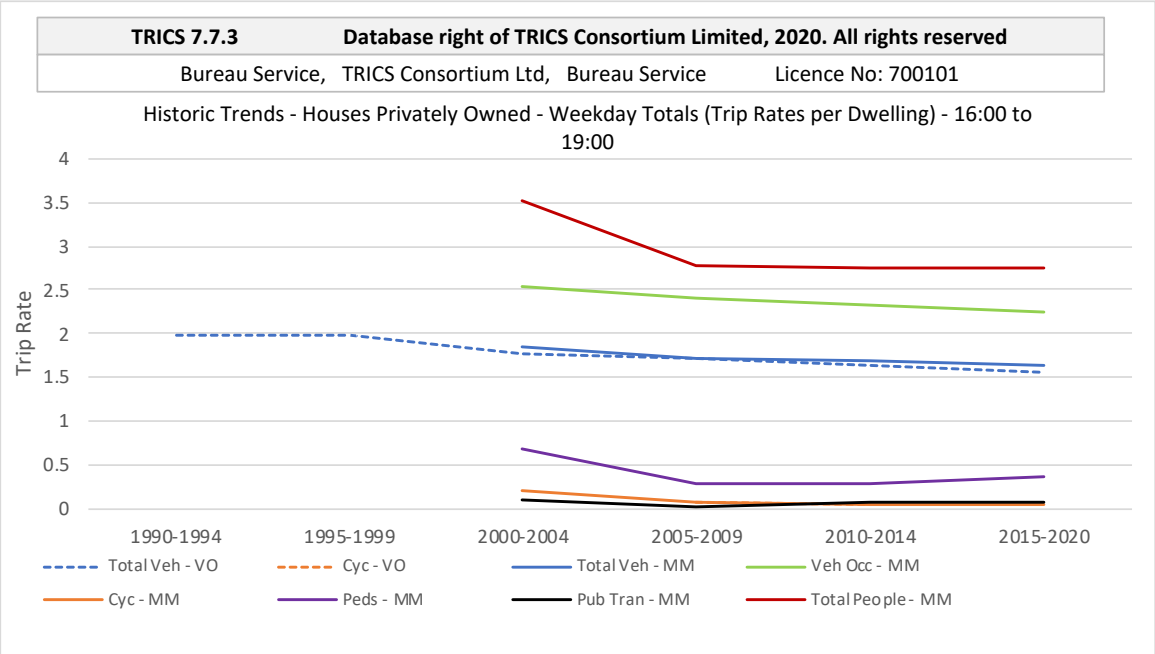
21.43 Historic Trend Analysis has been undertaken for Weekday only to outline whether different trends have been observed through the 30 years of data available with the TRICS Database. The site locations were restricted to Edge of Town, as per the proposed development's location. Care needs to be taken to remove Edge of Town sites that do not reflect the sites rural location and proximity to larger Towns.

21.44 **F 21.19**, **F 21.20** and **F 21.21** show the recorded historic trends for Weekday AM peak period of 07:00 to 10:00, the PM peak period of 16:00 to 19:00 and the 12-hour period of 07:00 to 19:00. A 5-year time slice was used in this instance, the spreadsheet used to undertake this analysis produces both tabulated information and graphs, this enables the user to undertake detailed analysis where necessary.

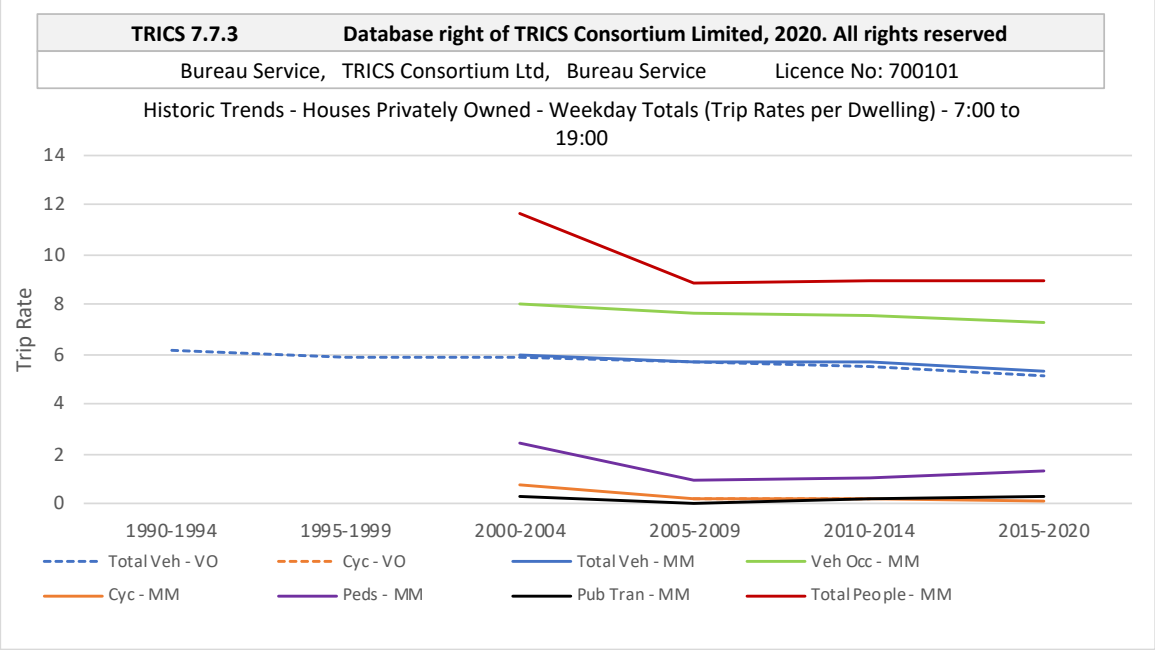
F 21.19 **Historic Trend Analysis – Example 4 – Weekday – AM Period – Total Trips**



F 21.20 **Historic Trend Analysis – Example 4 – Weekday – PM Period – Total Trips**



F 21.21 **Historic Trend Analysis – Example 4 – Weekday – 12 Hour Period – Total Trips**



21.45 It can be observed within the TRICS data that the trend for a reduction in Total People seems to be stabilising. With total vehicles slightly dropping over time and non-vehicle modes slightly increasing. The use of total flows and these time periods is for the purposes of this Guidance and it is up to the author of the report to decide what time periods, direction of flow and time slices are examined.

21.46 Current Trip Rate Analysis has been undertaken using the TRICS Database. **T 21.22** summarises the Weekday Total Trip Rates for the development land-use that is consistent with the split between private and affordable housing, the latest 8 years TRICS surveys using Multi-Modal Trip Rates have been selected. The Current Trip Rate Analysis is undertaken as per the TRICS Good Practice Guide and would include all outputs and assumptions within the TA. It would be best practice to include summary tables and information for both Arrivals and Departures when undertaking a TA or other similar report. However, for the purposes of this Guidance detailed information has been kept to a minimum, where possible, to reduce information overload.

T 21.22 Current Trip Rate Analysis – 03/A Residential – Example 4 –Total Trips

TRICS 7.7.3	DATABASE RIGHT OF TRICS CONSORTIUM LIMITED, 2021. ALL RIGHTS RESERVED													
BUREAU SERVICE, TRICS CONSORTIUM LIMITED											LICENCE NO: 700101			
TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED														
Calculation Factor: 1 DWELLS														
Trip Rate - Totals														
Time Range	TOTAL VEHICLES	TAXIS	OGVS	PSVS	CYCLISTS	VEHICLE OCCUPANTS	PEDESTRIANS	BUS/TRAM PASSENGERS	TOTAL RAIL PASSENGERS	PUBLIC TRANSPORT USERS	TOTAL PEOPLE	CARS	LGVS	MOTOR CYCLES
00:00-01:00														
01:00-02:00														
02:00-03:00														
03:00-04:00														
04:00-05:00														
05:00-06:00														
06:00-07:00														
07:00-08:00	0.370	0.007	0.009	0.000	0.012	0.481	0.052	0.015	0.006	0.021	0.564	0.258	0.047	0.002
08:00-09:00	0.569	0.004	0.004	0.008	0.021	0.837	0.137	0.032	0.003	0.035	1.029	0.414	0.046	0.003
09:00-10:00	0.385	0.008	0.008	0.004	0.003	0.509	0.107	0.011	0.001	0.012	0.632	0.281	0.035	0.003
10:00-11:00	0.312	0.005	0.009	0.000	0.006	0.389	0.104	0.014	0.002	0.015	0.514	0.218	0.051	0.003
11:00-12:00	0.340	0.008	0.010	0.006	0.007	0.450	0.073	0.011	0.001	0.012	0.541	0.215	0.046	0.003
12:00-13:00	0.357	0.007	0.003	0.000	0.006	0.438	0.085	0.013	0.001	0.014	0.544	0.255	0.041	0.004
13:00-14:00	0.396	0.007	0.005	0.000	0.009	0.522	0.113	0.004	0.002	0.006	0.649	0.291	0.051	0.003
14:00-15:00	0.414	0.009	0.001	0.004	0.004	0.527	0.094	0.009	0.002	0.011	0.636	0.328	0.031	0.003
15:00-16:00	0.539	0.012	0.011	0.006	0.010	0.806	0.157	0.025	0.002	0.026	0.999	0.400	0.052	0.001
16:00-17:00	0.521	0.014	0.007	0.002	0.011	0.747	0.123	0.015	0.005	0.020	0.902	0.362	0.055	0.007
17:00-18:00	0.577	0.012	0.003	0.001	0.013	0.797	0.108	0.012	0.004	0.016	0.934	0.406	0.065	0.003
18:00-19:00	0.509	0.012	0.002	0.000	0.011	0.696	0.100	0.018	0.004	0.022	0.828	0.392	0.040	0.002
19:00-20:00														
20:00-21:00														
21:00-22:00														
22:00-23:00														
23:00-24:00														
Daily Trip Rates:	5.289	0.105	0.072	0.031	0.113	7.199	1.253	0.179	0.033	0.210	8.772	3.820	0.560	0.037

21.47 The above figures would then be used to create an analysis of the proposed development if constructed using currently observed travel behaviours. Analysis of the impact of vehicular and non-vehicular movements should be undertaken to assess capacity and safety implications of all modes.

Scenario Planning

21.48 For this scale of development, it is suggested that scenario planning is not required. The Fan of Influence should include the historic trends, current trip rates and DfT Scenario 6 to illustrate the trip generation for the proposed site.

WORKED EXAMPLE NO. 5: RESIDENTIAL BROWN FIELD SITE

Description & Vision

21.49 The TRICS parameters for Worked Example No. 5 comprise 150-200 Dwellings within Large Town, Mixed Use with Flats/Apartments and Houses and Industrial Estate Conversion to Residential.

21.50 This worked example is located close to a rail station within in a large town. The proposal is for a major new building providing commercial space plus 200 new "build to rent" flats with the provision of two large roof terraces at first floor level.

21.51 The vision for this development is to support urban regeneration of the town and provide an urban community. High quality cycle and pedestrian links to the station and to the town centre are proposed which is within 500m of the proposed development.

21.52 It is proposed that there will be reduced parking provision given the proximity to public transport facilities. However, emphasis will be placed on the provision of EV and disabled facilities. A Car Club will also be provided.

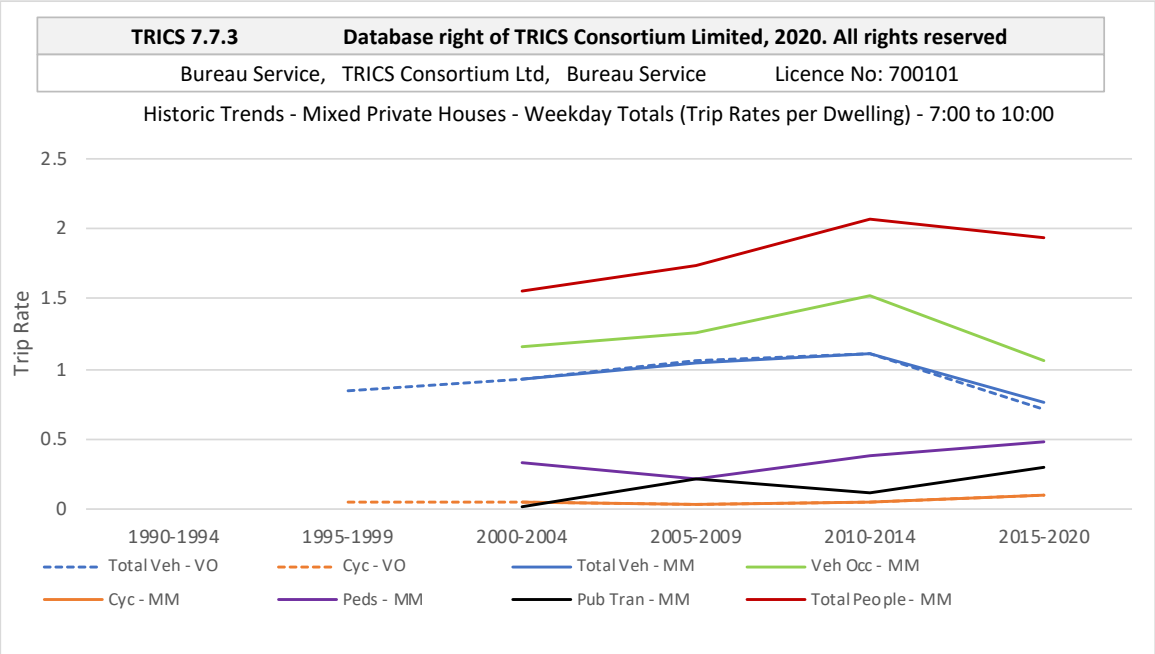
Recommended Approach

21.53 Historic Trend Analysis has been undertaken for Weekday only to outline whether different trends have been observed through the 30 years of data available with the TRICS Database. The site locations were restricted to Edge of Town, as per the proposed development's location.

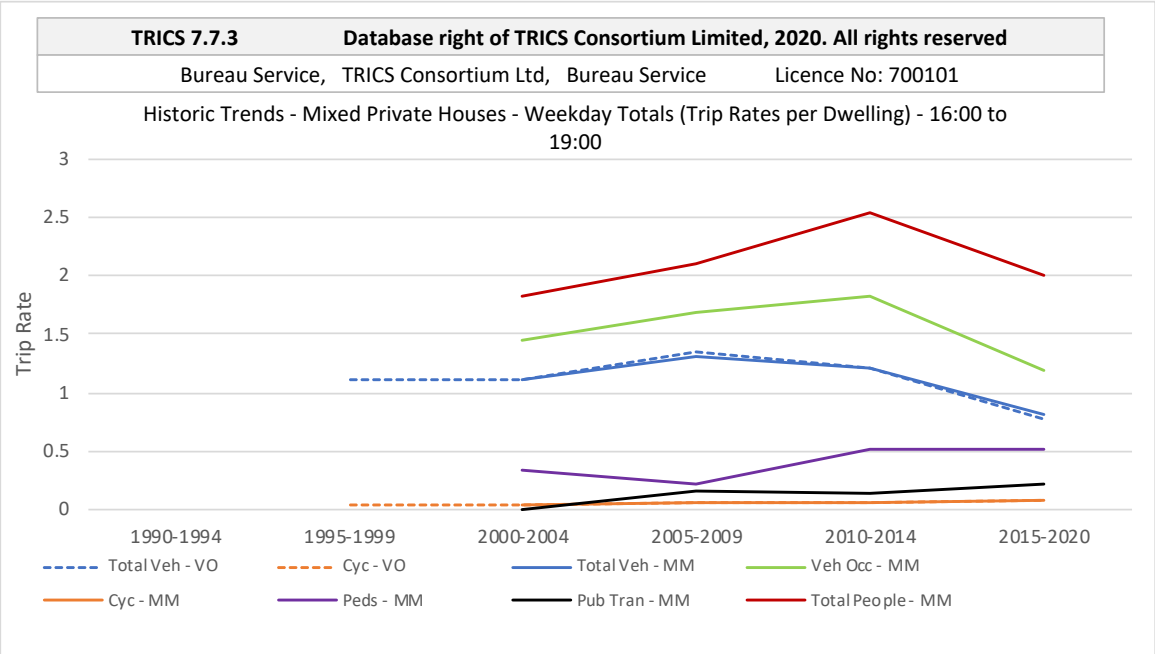
21.54 **F 21.23**, **F 21.24** and **F 21.25** show the recorded historic trends for Weekday AM peak period of 07:00 to 10:00, the PM peak period of 16:00 to 19:00 and the 12-hour period of 07:00 to 19:00. A 5-year time slice was used in

this instance, the spreadsheet used to undertake this analysis produces both tabulated information and graphs, this enables the user to undertake detailed analysis, where necessary.

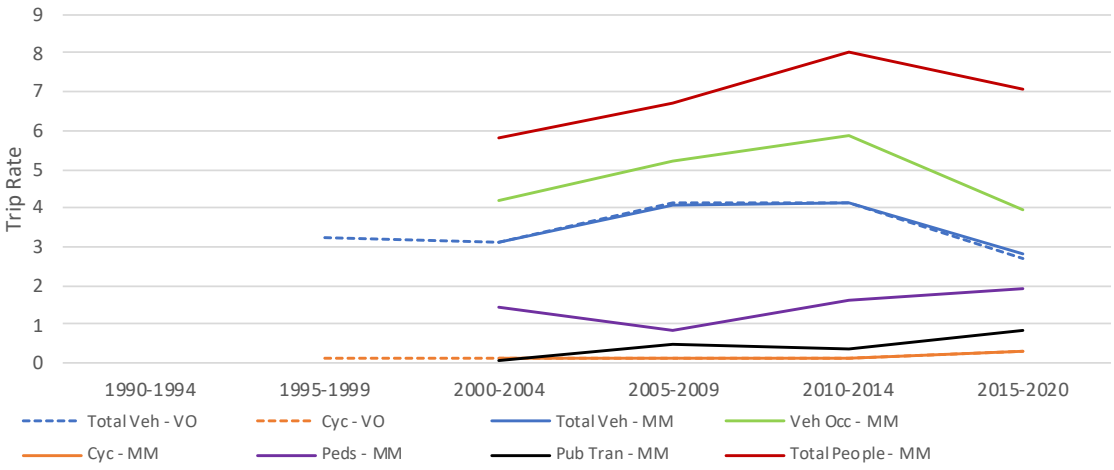
F 21.23 **Historic Trend Analysis – Example 5 – Weekday – AM Period – Total Trips**



F 21.24 **Historic Trend Analysis – Example 5 – Weekday – PM Period – Total Trips**



F 21.25 **Historic Trend Analysis – Example 5 – Weekday – 12 Hour Period – Total Trips**



21.55 It can be observed within the TRICS data that there is a trend for an increase in Total People. With total vehicles slightly dropping over the past 5 years and non-vehicle modes increasing. The use of total flows and these time periods is for the purposes of this Guidance and it is up to the author of the report to decide what time periods, direction of flow and time slices are examined.

21.56 Current Trip Rate Analysis has been undertaken using the TRICS Database. **T 21.26** summarises the Weekday Total Trip Rates for the development land-uses that reflects the makeup of the development site, this being Private Houses and Flats, the latest 8 years TRICS surveys using Multi-Modal Trip Rates have been selected. The Current Trip Rate Analysis is undertaken as per the TRICS Good Practice Guide and would include all outputs and assumptions within the TA. It would be best practice to include summary tables and information for both Arrivals and Departures when undertaking a TA or other similar report. However, for the purposes of this document detailed information has been kept to a minimum, where possible, to reduce information overload.

T 21.26 **Current Trip Rate Analysis – 03/K Residential – Example 5 –Total Trips**

TRICS 7.7.3	DATABASE RIGHT OF TRICS CONSORTIUM LIMITED, 2021. ALL RIGHTS RESERVED											
BUREAU SERVICE, TRICS CONSORTIUM LIMITED										LICENCE NO: 700101		
TRIP RATE for Land Use 03 - RESIDENTIAL/K - MIXED PRIV HOUS (FLATS AND HOUSES)												
Calculation Factor: 1 DWELLS												
Trip Rate - Totals												
Time Range	TOTAL VEHICLES	TAXIS	OGVS	PSVS	CYCLISTS	VEHICLE OCCUPANTS	PEDESTRIANS	BUS/TRAM PASSENGERS	TOTAL RAIL PASSENGERS	COACH PASSENGERS	PUBLIC TRANSPORT USERS	TOTAL PEOPLE
00:00-01:00												
01:00-02:00												
02:00-03:00												
03:00-04:00												
04:00-05:00												
05:00-06:00												
06:00-07:00												
07:00-08:00	0.219	0.010	0.000	0.002	0.017	0.273	0.097	0.039	0.046	0.003	0.089	0.477
08:00-09:00	0.310	0.018	0.001	0.000	0.035	0.462	0.234	0.052	0.036	0.000	0.088	0.818
09:00-10:00	0.289	0.023	0.006	0.002	0.015	0.354	0.139	0.042	0.039	0.003	0.083	0.592
10:00-11:00	0.172	0.016	0.003	0.000	0.013	0.238	0.116	0.034	0.014	0.000	0.049	0.415
11:00-12:00	0.189	0.012	0.005	0.000	0.021	0.244	0.097	0.020	0.010	0.000	0.030	0.392
12:00-13:00	0.224	0.004	0.003	0.004	0.019	0.301	0.135	0.035	0.010	0.000	0.047	0.500
13:00-14:00	0.262	0.015	0.004	0.002	0.023	0.328	0.147	0.036	0.011	0.003	0.051	0.548
14:00-15:00	0.231	0.007	0.000	0.000	0.020	0.321	0.177	0.028	0.010	0.000	0.038	0.555
15:00-16:00	0.263	0.011	0.004	0.001	0.018	0.388	0.181	0.054	0.014	0.002	0.070	0.655
16:00-17:00	0.260	0.011	0.000	0.001	0.014	0.395	0.168	0.036	0.009	0.001	0.046	0.623
17:00-18:00	0.309	0.018	0.000	0.000	0.020	0.426	0.206	0.050	0.025	0.000	0.075	0.728
18:00-19:00	0.309	0.010	0.000	0.000	0.018	0.432	0.160	0.046	0.044	0.000	0.090	0.700
19:00-20:00	0.159	0.000	0.000	0.000	0.000	0.208	0.122	0.024	0.085	0.000	0.110	0.439
20:00-21:00	0.110	0.024	0.000	0.000	0.036	0.171	0.147	0.000	0.037	0.000	0.037	0.390
21:00-22:00												
22:00-23:00												
23:00-24:00												
Daily Trip Rates:	**3.306**	**0.179**	**0.026**	**0.012**	**0.269**	**4.541**	**2.126**	**0.496**	**0.390**	**0.012**	**0.903**	**7.832**

21.57 The above figures would then be used to create an analysis of the proposed development if constructed using currently observed travel behaviours. Analysis of the impact of vehicular and non-vehicular movements should be undertaken to assess capacity and safety implications of all modes.

Scenario Planning

21.58 It is recommended that two scenarios are considered. Historic trends and TRICS current trips along with trip rates derived from Scenario 6 (RTF18) to represent change in travel behaviour (this would be scenario 1) and an ultra-sustainable approach that links to Scenario 7 EVs would be scenario 2.

21.59 A Fan of Influence would then be shown through historic data, current trip rates and two scenarios.

WORKED EXAMPLE NO. 6: SMALL RESIDENTIAL

Description & Vision

21.60 The TRICS parameters for Worked Example No. 6 comprise 25-50 Flats/Apartments, Low Car Ownership. Larger Town/City Centre, Conversion of Offices.

21.61 The proposal is to convert former town centre office space into accommodation. Permission is sought for 23 residential units, no off-street car parking is to be provided given the site's location in the heart of the town centre.

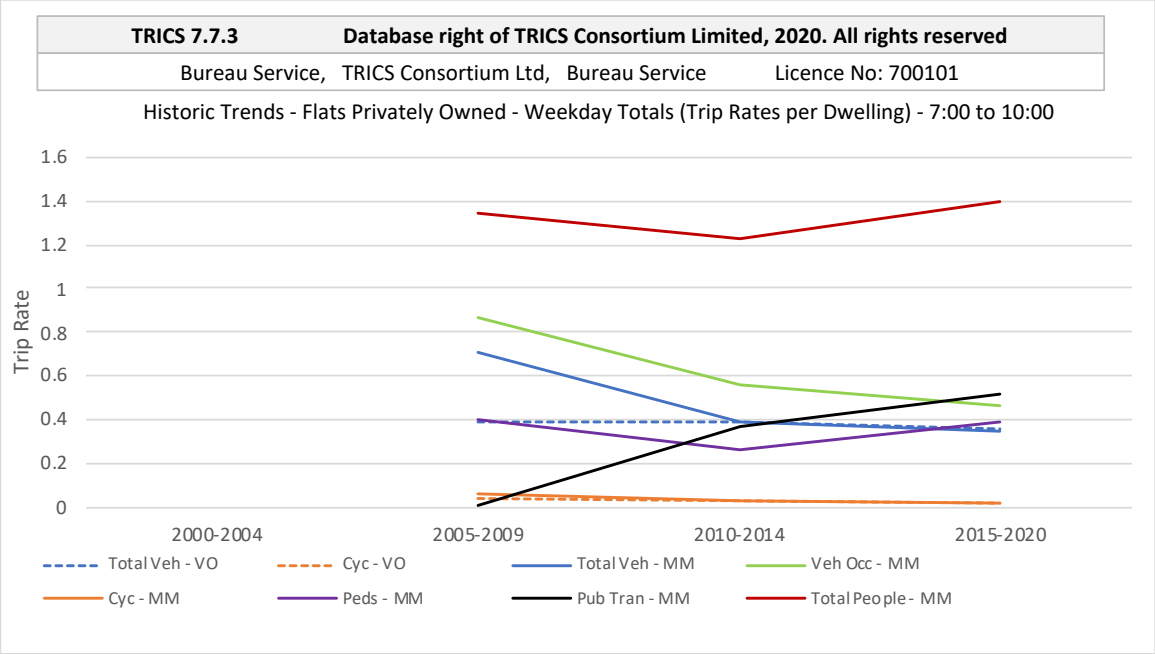
21.62 The vision of the development is to support town centre regeneration and to provide affordable housing for young people trying to get onto the property ladder. The sustainability of the site is supported by existing high quality cycle and pedestrian links to the existing town centre cycle network. Secure cycle parking will be provided.

Recommended Approach

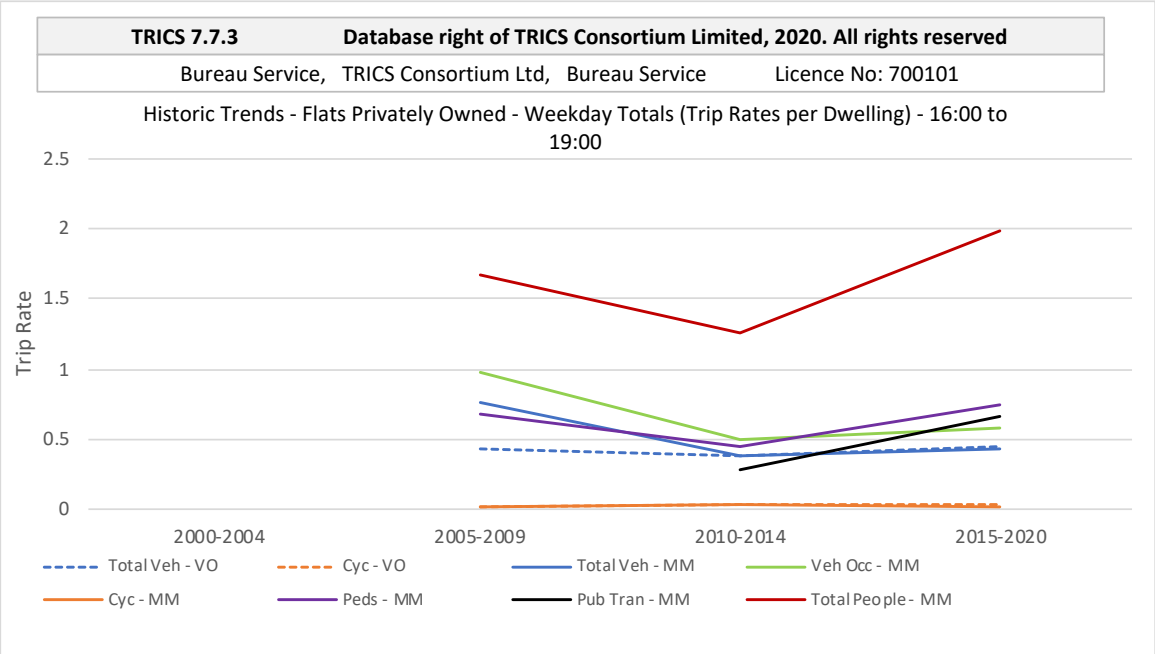
21.63 Historic Trend Analysis has been undertaken for Weekday only to outline whether different trends have been observed through the 30 years of data available with the TRICS Database. TThe site locations were restricted to Town Centre and Edge of Town Centre.

21.64 **F 21.27**, **F 21.28** and **F 21.29** show the recorded historic trends for Weekday AM peak period of 07:00 to 10:00, the PM peak period of 16:00 to 19:00 and the 12-hour period of 07:00 to 19:00. A 5-year time slice was used in this instance, the spreadsheet used to undertake this analysis produces both tabulated information and graphs, this enables the user to undertake detailed analysis where necessary. Due to the absence of applicable surveys prior to 2005 only 15 years' worth of data has been used for this exercise.

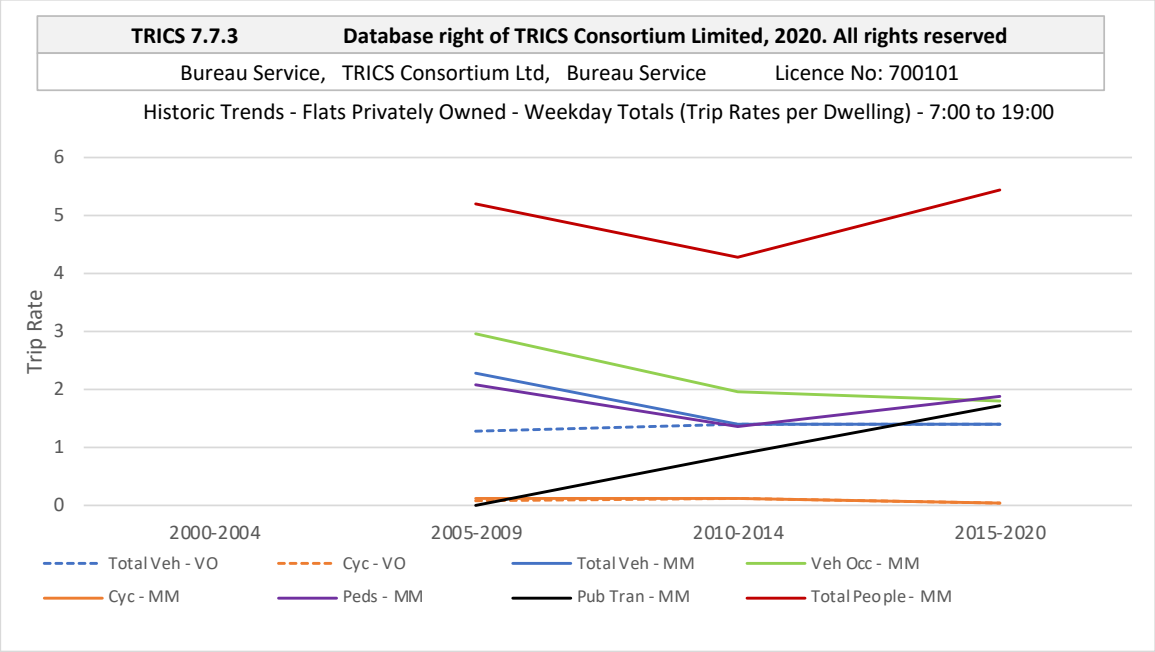
F 21.27 **Historic Trend Analysis – Example 6 – Weekday – AM Period – Total Trips**



F 21.28 **Historic Trend Analysis – Example 6 – Weekday – PM Period – Total Trips**



F 21.29 **Historic Trend Analysis – Example 6 – Weekday – 12 Hour Period – Total Trips**



21.65 It can be observed within the TRICS data that the trend for a reduction in Total Vehicles seems to be stabilising, with Total People increasing over time and non-vehicle modes becoming more popular. The use of total flows and these time periods is for the purposes of this Guidance and it is up to the author of the report to decide what time periods, direction of flow and time slices are examined.

21.66 Current Trip Rate Analysis has been undertaken using the TRICS Database. **T 21.30** summarises the Weekday Total Trip Rates for the development land-use that is consistent with the proposal, the latest 8 years TRICS surveys using Multi-Modal Trip Rates have been selected. The Current Trip Rate Analysis is undertaken as per the TRICS Good Practice Guide and would include all outputs and assumptions within the TA. It would be best practice to include summary tables and information for both Arrivals and Departures when undertaking a TA or other similar report. However, for the purposes of this document detailed information has been kept to a minimum, where possible, to reduce information overload.

T 21.30 Current Trip Rate Analysis – 03/A Residential – Example 6 –Total Trips

TRICS 7.7.3	DATABASE RIGHT OF TRICS CONSORTIUM LIMITED, 2021. ALL RIGHTS RESERVED									
BUREAU SERVICE, TRICS CONSORTIUM LIMITED								LICENCE NO: 700101		
TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED										
Calculation Factor: 1 DWELLS										
Trip Rate - Totals										
Time Range	TOTAL VEHICLES	TAXIS	OGVS	CYCLISTS	VEHICLE OCCUPANTS	PEDESTRIANS	BUS/TRAM PASSENGERS	TOTAL RAIL PASSENGERS	PUBLIC TRANSPORT USERS	TOTAL PEOPLE
00:00-01:00										
01:00-02:00										
02:00-03:00										
03:00-04:00										
04:00-05:00										
05:00-06:00										
06:00-07:00										
07:00-08:00	0.098	0.000	0.016	0.012	0.134	0.095	0.097	0.064	0.161	0.403
08:00-09:00	0.147	0.000	0.000	0.012	0.221	0.145	0.147	0.082	0.230	0.609
09:00-10:00	0.087	0.008	0.004	0.000	0.112	0.095	0.066	0.054	0.120	0.327
10:00-11:00	0.058	0.000	0.002	0.004	0.064	0.100	0.038	0.042	0.076	0.245
11:00-12:00	0.095	0.004	0.010	0.002	0.110	0.083	0.035	0.034	0.064	0.259
12:00-13:00	0.118	0.016	0.000	0.000	0.162	0.095	0.042	0.010	0.052	0.308
13:00-14:00	0.068	0.000	0.000	0.008	0.089	0.128	0.041	0.028	0.072	0.298
14:00-15:00	0.081	0.000	0.010	0.004	0.093	0.091	0.031	0.029	0.058	0.247
15:00-16:00	0.093	0.000	0.002	0.000	0.147	0.153	0.081	0.037	0.120	0.421
16:00-17:00	0.109	0.008	0.000	0.002	0.156	0.188	0.069	0.049	0.118	0.464
17:00-18:00	0.128	0.000	0.004	0.010	0.166	0.236	0.108	0.085	0.193	0.604
18:00-19:00	0.115	0.008	0.000	0.012	0.137	0.167	0.097	0.122	0.224	0.540
19:00-20:00	0.088	0.000	0.000	0.010	0.117	0.235	0.196	0.176	0.373	0.735
20:00-21:00	0.040	0.000	0.000	0.000	0.049	0.157	0.059	0.089	0.147	0.352
21:00-22:00										
22:00-23:00										
23:00-24:00										
Daily Trip Rates:	**1.325**	**0.044**	**0.048**	**0.076**	**1.757**	**1.968**	**1.107**	**0.901**	**2.008**	**5.812**

21.67 The above figures would then be used to create an analysis of the proposed development if constructed using currently observed travel behaviours. Analysis of the impact of vehicular and non-vehicular movements should be undertaken to assess capacity and safety implications of all modes.

Scenario Planning

21.68 For this scale of development scenario planning is not generally required. However, it would be worthwhile considering a scenario of ultra-sustainable development given the trends shown for this type of development and RTF18 Scenario 6 for changes in travel behaviour.

22 | SUMMARY CHECKLIST

This Guidance concludes with a short summary checklist to assist TRICS users and other practitioners who are preparing or reviewing a TS/TA (or similar appraisal document). It sets out the key components of the applied D&P approach that need to be included.

- A clearly stated place-making vision.
- Statement of policy compliance, including related decarbonisation and health policies.
- Evidence of pre-application/scoping discussions with the LPA/LHA.
- Travel behaviour trend analysis evidence, such as use of the TRICS Historic Trend Analysis tool (including the Trends Output Summary Sheet).
- Current trip rates or other evidenced data sets (included TRICS output in PDF, where used).
- Assessment assumptions set down in full.
- Open acknowledgement of any areas of uncertainty.
- A minimum of three scenarios for projects requiring the full deployment of scenario planning techniques.
- Results presented in a Fan of Influence or similar for the range of plausible scenarios considered.
- Analysis of the impact of anticipated vehicular and non-vehicular movements using the current trip rates and the applicable forecast scenarios, as appropriate.
- A site-specific transport strategy which supports the stated vision.
- A Monitoring and Enforcement Plan (MEP).

23 | WHERE CAN YOU FIND OUT MORE ABOUT THIS TOPIC AND RELATED ISSUES?

These documents are referred to in the Guidance and provide the context for the practical implementation of the D&P approach for TRICS.

Guidance for transport planning and policymaking in the face of an uncertain future.
Glenn Lyons & Cody Davidson, 2016.
http://dx.doi.org/10.1016/j.tra.2016.03.012

Uncertainty Ahead: Which Way Forward For Transport? Final Report from the CIHT FUTURES Initiative, Chartered Institution of Highways & Transportation. Glenn Lyons, August 2016.
https://www.ciht.org.uk/knowledge-resource-centre/resources/futures/

All Change? The future of travel demand and the implications for policy and planning:
The First Report of the Commission on Travel Demand, May 2018
http://www.demand.ac.uk/wp-content/uploads/2018/04/FutureTravel_report_final.pdf

Decarbonising Transport: Setting the Challenge, DfT, March 2020
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/878642/decarbonising-transport-setting-the-challenge.pdf

Road Traffic Forecasts 2018 – Moving Britain Ahead, DfT, July 2018
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/873929/road-traffic-forecasts-2018-document.pdf

Appraisal and Modelling Strategy:
Informing Future Investment Decisions – Moving Britain Ahead, DfT, April 2019
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/795924/appraisal-and-modelling-strategy.pdf

The Futures Toolkit: Tools for Futures Thinking and Foresight Across UK Government – Edition 1.0, Government Office for Science, November 2017
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/674209/futures-toolkit-edition-1.pdf

Opening out and closing down: the treatment of uncertainty in transport planning's forecasting paradigm, Glenn Lyons & Greg Marsden, November 2019
https://link.springer.com/article/10.1007/s11116-019-10067-x

Better planning, better transport, better places, CIHT, August 2019
https://www.ciht.org.uk/media/10218/ciht-better-planning-a4_updated_linked_.pdf

All change? Travel tracker –
Wave 1 summary for the Department for Transport, DfT & Ipsos MORI, June 2020
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/902845/all-change-travel-tracker-wave-1-summary-for-the-department-for-transport.pdf

ACKNOWLEDGEMENTS

We would like to thank the following individuals who have contributed to the development of this guidance:

Lynn Basford - BasfordPowers

Paul Corbett - CBO Transport Limited

Department for Transport

Michelle Edser - Surrey County Council

Owen Edwards - TRICS

Mike Green – Surrey County Council

Alex Jack – East Sussex County Council

Phil Jones - PJA

Raymond Long – Richard Jackson Ltd

Glenn Lyons – University of the West of England

Richard Pettitt - IPaD

Jane Powers – BasfordPowers

Nick Rabbets – TRICS

Fran Rowley – Turleys Planning

Mark Scroggs – Waterman Group

Steven Shaw – West Sussex County Council

Richard Stacey – Evoke Transport

Lee White – Sterling Transport Consultancy

Jon Williams - Evoke Transport


trics®