

WCC Modelling Protocol

Advice Note 2a.3 – Trip Distribution Calculations

Purpose of This Note

1. This note sets out the guidance on methodologies to inform trip distribution patterns associated with proposed development in Warwickshire.

Background

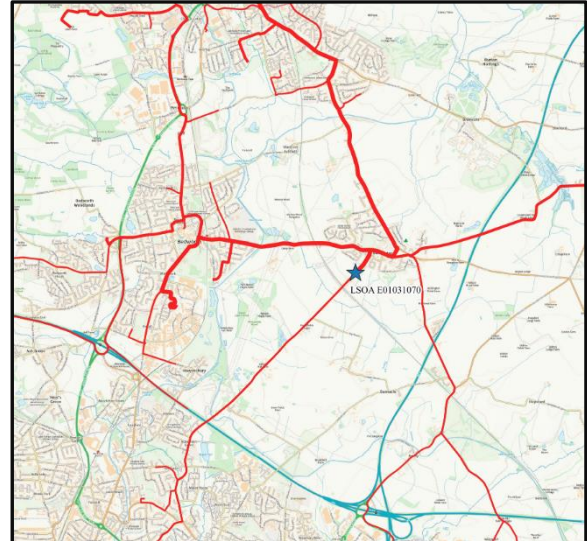
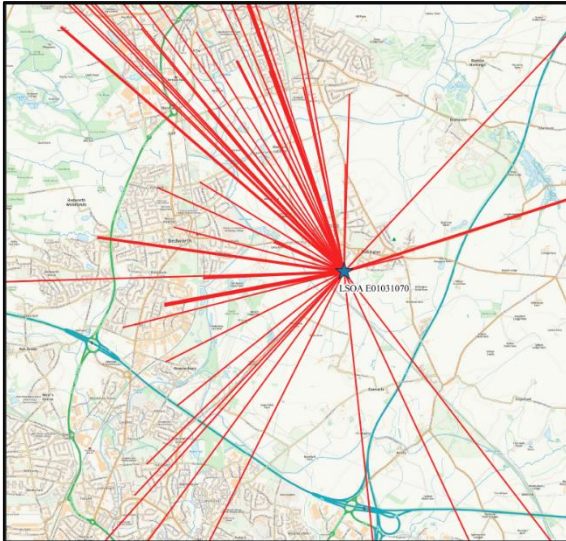
2. Once a trip generation for a proposed development has been estimated and agreed with WCC, it is important that the origins and destinations of these trips are understood before any detailed assessment of impacts is undertaken. To this, a suitable trip distribution should be derived.
3. The method of estimating a trip distribution will vary depending on the proposed land use that is being assessed.

Residential Land Use

4. Historically, Census Journey to Work data has been used to determine origins and destinations for commuter trips and data, using a suitable proxy Middle Super Output Area (MSOA) applied to a proposed residential development to produce AM and PM trip distributions.
5. WCC considers that 2011 Census data is too outdated to provide a reliable distribution. The 2021 Census was affected by disruption to travel patterns resulting from the Covid-19 pandemic, so will be similarly unreliable.
6. WCC holds Mobile Network Data (MND) which is more recent than Census data and is also provides greater granularity, being aggregated to a Lower Super Output Area (LSOA) level. It also includes a greater range of trip purposes and time periods:

day_type	Day of the week. e.g. Weekday / Weekend	Weekend (Saturday), Weekday (Tue-Thu).
time_period	A time period breaks a day into multi-hour groups e.g. Peak / Off-Peak	Weekdays: Morning (AM) (7-10), Inter Peak (IP) (10-16), Evening (PM)(16-19), Off-Peak (OP) (19-07) by hour. Weekend: Off-Peak (WE OP) (10-16) by hour.
mode_of_transport	The mode of transport used on the longest leg of journey. e.g. highway, rail.	Highway, rail, walking, other.
trip_purpose	The reason why the journey has been made. e.g. Home-Home (home based work)	Home-Home, Home-Work, Home-Other, Work-Home, Work-Work, Work-Other, Other-Home. Other-Work, Other-Other.

7. Where a new residential development is proposed, a suitable proxy LSOA (i.e. an LSOA containing a similar scale and tenure of residential development to the proposed site) should be used to obtain a MND distribution. This can then be applied to the trip generation of the proposed site to determine the distribution of trips for the development.



Employment Development

8. Mobile Network Data can be utilised for certain type of employment development, e.g. offices, and should be derived from a suitable proxy site agreed with WCC.
9. For other employment uses, such as warehousing, a gravity-based approach based on trip attractors and population/distance information, may be more appropriate. Gravity models should utilise the most recent Census data, considering population estimates and demographic data, and a suitable routing method.
10. A full methodology for determining a suitable employment distribution should be agreed with WCC prior to the commencement of any further assessment.

Retail Development

11. Trip distributions for retail land uses should flow from the Retail Impact Assessment (RIA) used to inform trip generation for this land use. Mobile Network Data may be applied to certain trip types as outlined below, otherwise the RIA should be used.
12. Trips must be split as:
 - New Trips: Mobile Network Data (MND).
 - Pass-by trips: Retail Impact Assessment (RIA).
 - Linked trips: Retail Impact Assessment (RIA).
 - Diverted trips: Mobile Network Data (MND).

13. Where the RIA is difficult to obtain, WCC can accept the use of a link select analysis for Pass-by trips.
14. As linked trips are not supposed to affect the use of the network. This can be deducted from the total trip generation if agreed with WCC.