

Hertfordshire County Council

(as Local Highway Authority)

Protocol for working with Districts & Boroughs during the Local Plan process

May 2015

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1.0 Background

This Protocol has been developed to enable Districts to understand the role and expectations of the County Council (in its capacity as Local Highway Authority), throughout the Local Plan process. The intention of the Protocol is to set out the level of information expected by the Local Highway Authority (LHA) at each stage of the Plan making process to ensure that a consistent approach is applied across the County.

A Local Development Framework (LDF) Transport Issues Protocol was developed by the LHA in January 2011. This was primarily concerned with the data and modelling support available to assist the LDF process. At this time it was recognised that the Protocol would need to be reviewed and amended, as experience was gained in using it, and to reflect any changes to the transport or spatial planning processes.

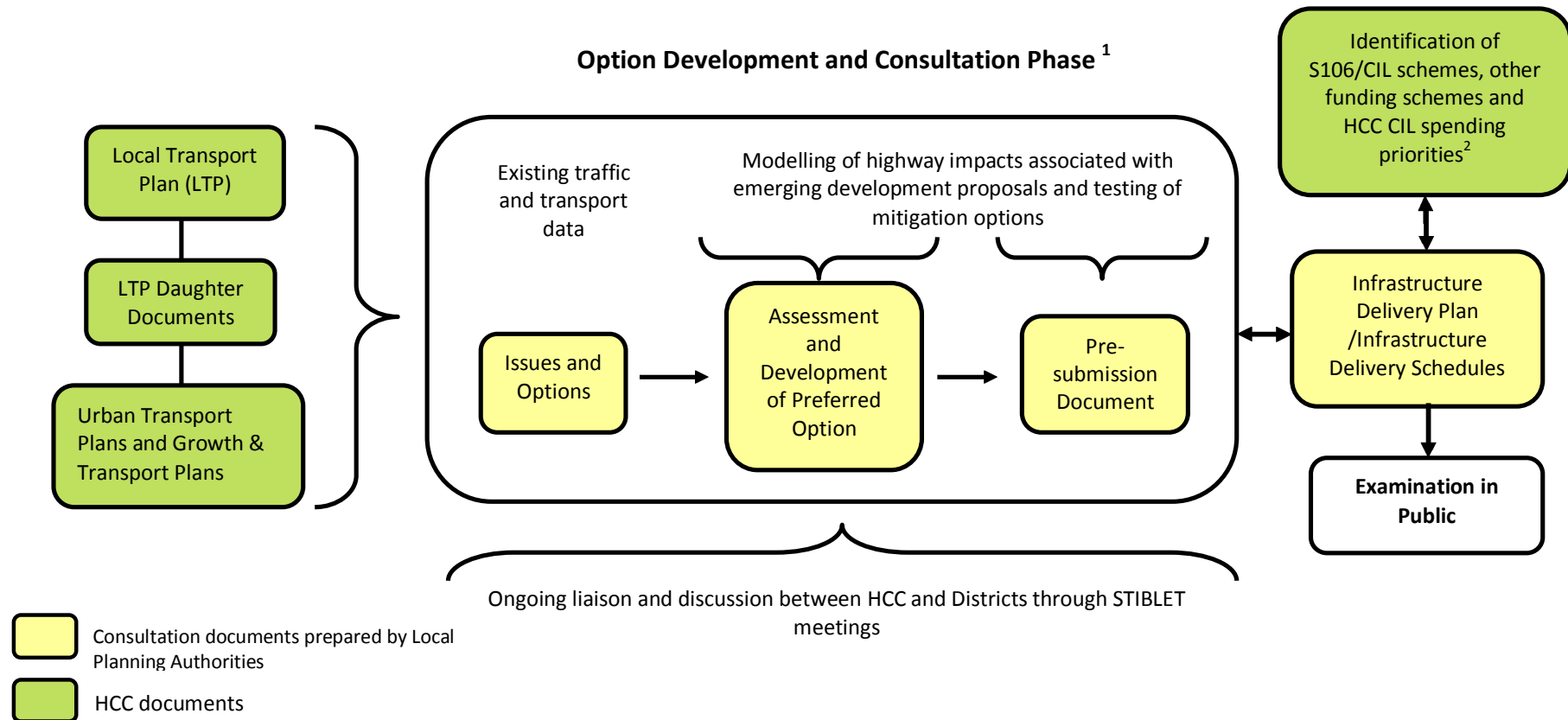
Since 2011, there have been significant changes to planning guidance (the National Planning Policy Framework - NPPF) and new challenges associated with the funding and delivery of infrastructure (i.e. the requirements of the Community Infrastructure Levy (CIL) Guidance 2012 for Local Planning Authorities and the County Council, to identify specific infrastructure requirements upfront as part of the Plan making process).

Furthermore, Districts have progressed at different rates through the Local Plan process and this updated Protocol reflects the experience gained to date. It also takes on board the recently published Protocol from Highways England (formerly the Highways Agency)¹.

The overall aim of the Protocol is to ensure that sufficient evidence is available by the time of an Examination in Public (EiP) so that the County Council as LHA are able to support the Development Strategies and Infrastructure Development Plans being brought forward in Hertfordshire. It will ensure that the expertise and resources of the authorities is used as effectively as possible, in order to achieve the best outcome for the local community whilst reducing the work required by each authority.

The diagram below (Figure 1) sets out an overview of the key interfaces between the County and District Councils in the Local Plan process. It is recognised that the detail of this process will vary between the Districts.

FIGURE 1 LOCAL PLAN PROTOCOL PROCESS



¹ Local Highway Authority will maintain dialogue with Local Planning Authority (LPA) throughout Option Development and Consultation phase and will provide formal response to consultations where required

² Hertfordshire County Council will identify the infrastructure schemes required to support growth outlined in the Local Plan. This will include the identification of potential funding sources and identification of Community Infrastructure Levy (CIL) spending priorities where LPA develop a CIL Charging Schedule.

2.0 The Protocol

2.1 *Local Plan Evidence Requirements*

This Protocol sets out the level of detail required by the Local Highway Authority (LHA) to support emerging development strategies and infrastructure planning processes within Hertfordshire. The aim of this is for the technical assessment work to ultimately give Hertfordshire County Council (HCC) as LHA, a reasonable level of confidence that development related highways issues can be overcome, and also that there are no severe impacts associated with the delivery of the Plan or other major 'show stoppers' to the delivery of critical infrastructure items prior to the EiP of emerging Local Plans.

HCC recognise that the level of evidence required needs to be proportionate and will vary according to the stage of the Local Plan process and the scale of development being promoted.

For example, at the initial issues and options consultation stage, a desktop review of current network issues, which identifies whether proposed development locations are likely to impact on already sensitive sections on the highway network, (i.e. locations where capacity / congestion is already an issue), will be sufficient. However, as the Plan develops to the preferred options stage (and prior to submission), some form of transport modelling is likely to be required to identify the potential scale of the highway impacts, (in relation to both large scale strategic sites and cumulative impact), and to help identify suitable mitigation measures.

Table 1 sets out the likely evidence requirements for each stage of the Local Plan process. However, the list is not comprehensive and the type of information required at each stage may depend on the scale and location of the development being proposed and the potential scale of impact on the highway network.

In some cases the level and / or location of the proposed development may be expected to have little impact on sensitive highway locations. Early discussions between HCC and the District will be necessary to establish the likely level and location of growth and subsequent evidence requirements. Any modelling work then needs to be proportionate and tailored to individual authorities based on the likely numbers of highway trips and expected onward distribution.

In some cases, the initial calculations/desk based assessments may form a suitable evidence base (i.e. there will not be a need for further modelling work). However, where development proposals are likely to result in a more significant impact on the road network, then more detailed modelling work and assessment of mitigation options will be required.

Should growth options be identified on or near to local authority boundaries, or if they impact on key highway routes, then it may be necessary to consider any cross boundary development and resultant impacts on the road network.

2.2 *The Role of HCC*

At the Options stage, HCC will provide pre existing traffic and transport data free of charge. Current network constraints have already been identified in many areas from

pre existing studies such as the Urban Transport Plans (UTPs), Growth & Transport Plans (GTPs), Inter Urban Route Strategy (IURS) and congestion hotspot analysis. HCC will use these and other relevant work to flag up areas of concern. HCC will also ensure that Local Transport Plan (LTP) objectives are also flagged up at this stage.

HCC own a number of transport models covering the key towns and will provide advice on these and access to them. Districts will be expected to commission their own modelling runs using HCC's transport planning consultants and will be expected to meet the cost of this.

Where no pre existing transport model is available, HCC (and /or their transport planning consultants) will advise on the most appropriate form of assessment

Once potential mitigation measures are identified, the County Council will work with Districts, and any other relevant stakeholders, to assess the suitability, feasibility and deliverability of schemes, including identification of funding opportunities and potential delivery partners. This will form part of the integrated infrastructure planning process.

Where funding gaps are identified, HCC will work with the Districts to identify potential alternative sources of funding and, where appropriate, develop bids.

2.3 Contacts and roles within HCC

The Spatial Planning & Economy unit (SPE) will co-ordinate the County Council's Environment Department's overall response to Local Plan consultations, bringing together input from different service areas within the Environment Department (including Highways, passenger transport and Rights of Way). SPE also has a role in responding formally to any consultation from Local Planning Authorities, monitoring Local Plan timescales and liaising with Boroughs/Districts throughout the plan making process. In the first instance, SPE should be the first point of contact for Local Plan work.

The HCC Highways Development Manager (within the Operations and Strategy Unit) will co-ordinate the Highways response and report up through the County Council's Transport Planning governance (Transport Planning Board, Strategic Issues Transport Board (STIB) etc).

The provision of data and advice on modelling work and assistance with the interpretation of modelling results will be provided by the Transport Planning Data team.

The Highways Development Managers need to be made aware of potential development sites, and they will feed into the initial suitability reviews at the options sifting stage, and will then maintain ongoing dialogue during the preparation of the Local Plans and other DPD documents such as AAP or Site Allocations. Post EIP the Highways Development Managers will be responsible to assessing the applications and proposals for individual sites.

Table 2 at the end of this document lists the key HCC contacts by name.

2.4 *Role of the HA*

Highways England (HE) is responsible for maintaining, operating and improving the Strategic Road Network (SRN) which includes motorways and trunk roads. Roads under the HE's jurisdiction are:

- M1;
- M25;
- A1(M);
- A1 (south of M25);
- M11;
- A5 (north of M1 junction 9); and
- A414 (old M10 section).

Highways England is a named consultee in the Local Plan process and has a duty to cooperate with Local Authorities to support the preparation and implementation of development plan documents. They have developed their own Protocol¹ to support this.

The Highways England Protocol states that they will find ways to ensure that the needs of the SRN are adequately addressed in the Local Plans, and that they will support the development of a consistent and robust evidence base relating to the SRN providing access to data and traffic models. Their expectation is that policies and plans should identify the following:

- The type of improvement (mitigation measure) necessary with an early range estimate of likely cost
- At what point the improvement becomes necessary
- How the improvement is to be funded and delivered.

It is therefore essential that HE/ HCC and LPAs work together throughout the Local Plan process and that HE are fully involved in scheme identification (in relation to the SRN).

3.0 Data and Model Availability and Use

HCC holds a large amount of transport data which can be provided to the District Councils to develop their evidence base at no extra charge. Appendix 1 lists the information available.

The County already owns a number of traffic models which can potentially be used to test the implications of development options. Figure 1 shows the coverage of models in the County.

If no pre-existing transport model is available, HCC (and /or their transport planning consultants) will advise on the most appropriate form of assessment (Diamond Model / design feasibility study/ requirement to build a new model). The cost of any third party work will be borne by the District.

Where a model is already available covering the potential development areas, option tests can be commissioned via HCC's Transport Planning consultants, AECOM. Districts will pay the cost price of the option test, and the HCC Transport Planning and Data Team can offer technical guidance on the specification of the option test

and also interpretation of the results. HCC's technical support time is offered free of charge, however HCC reserves the right to consider future charging for certain elements of work (or work beyond a certain level or pre-determined time period). Modelling work can also be funded by developers, costs estimates will be provided by HCC to developers. The cost estimates will be based on the modelling work required as some developments may not require full modelling but may require some scenario testing of existing models.

This modelling work can be commissioned through HCC's Transport Planning contract with AECOM. In this case a task order will be developed in conjunction with HCC and will be sent to AECOM who will provide a costed specification, with timescale, in response. Once HCC have confirmation in writing that the District or developer will pay the full cost of the option test, AECOM will then be commissioned on the District's or developer's behalf. AECOM will issue invoices to HCC who will in turn invoice the District or developer for reimbursement of the costs.

An alternative approach is for the Districts to commission AECOM directly (where this is within their procurement rules). They would need to agree to AECOM's Day 1 terms and conditions from HCC's Transport Planning contract. The District would set up the order directly with AECOM and pay for all invoices directly. Where this arrangement is followed, it is strongly recommended that HCC remain involved throughout the modelling process.

In some cases (for example where a new model is required to be developed or where developers are already making use of a pre-existing model) it may be appropriate for an alternative consultant to be used for the modelling work. Early discussions should be held with HCC to determine the best strategy.

The cost of modelling work will vary depending on the size and number of developments to be tested, whether any update to existing models is required and what level of mitigation measures are required. Table 3 gives some indicative modelling costs and timescales.

Currently a County wide model (COMET) is being developed by HCC and will be available for use from 2016. Initially the model will be ideal for determining key development sites during the plan preparation and review stages. For further information please see attached Appendix 2.

HCC is proposing to seek a contribution from individual Districts for ongoing development work in 2016/17 which is likely to be £10,000. This will fund ongoing overall model development and refinement to further improve the model and keep it up to date.

3.1 Outputs from modelling work

Outputs available from the modelling work will vary depending on the type of model used.

Diamond is a link based spreadsheet model developed by AECOM for use in the initial option sifting stages of the Local Plan process. Output includes plots and tables showing the expected change in two-way vehicle flows on links expected with development. Given the spreadsheet nature of this model, these are presented as ranges (typically rounded to the nearest 200 vehicles). Although coarse, this does highlight the links expected to have the largest flow changes. Diamond is also able to give an indication of changes in congestion (volume to capacity ratio) and highlight

those links which are already at capacity (or expected to become so with development).

Saturn and Paramics are traffic models which are able to take full account of vehicle re routing due to congestion and also can properly model the impact of increased traffic flows at junctions. Outputs which can be produced include the following:

- Flow difference plots – absolute changes in traffic flow (including turning movements at junctions) with development;
- Changes in queues / delays / journey times;
- Volume to capacity ratios at junctions (and on links);
- Indication of likely onward routes of traffic from a particular development (select link analysis); and
- Overall network statistics (average journey times and delays – allowing different options to be quickly compared).

Saturn and Paramics based traffic models are also able to explicitly test the impact of potential mitigation schemes and measure their effectiveness

3.2 Cross Boundary Impacts

Whilst each Local Plan is considered separately, the NPPF makes it clear that there is a duty to cooperate with neighbouring authorities and, where possible, proposed growth in surrounding Districts needs to be taken account of in the Local Plan development and any associated modelling work.

Districts are at varying stages of their Local Plan process. Allowance for other Districts' growth will depend on the certainty of their development numbers and locations. Where Local Plans have been adopted, or where they are at an advanced stage of preparation, specific growth at defined locations can be included for neighbouring Districts in the modelling work. Where neighbouring Districts are at an earlier stage of the process and growth / locations are still undefined, it may be appropriate to use general Temprow growth in the modelling work. It is recognised that modelling assumptions of growth are based on the best information available at the time and could be subject to future change.

In order to identify the cumulative impacts of the various Local Plan proposals a run of the East of England Regional Model (EERM) was undertaken in early 2014 based on development information supplied by Districts at this point in time. This has identified road links and junctions which are predicted to be over capacity with the proposed levels of development by 2031. This information was shared with District planning officers during the Local Transport Plan Vision District Workshop, held in July 2014, and will be used as part of the evidence base to identify medium term challenges on the network. It is proposed that a further model run is undertaken later in 2015, with updated development information, and thereafter on an annual basis. The cost of this work will be borne by HCC.

4.0 Infrastructure Delivery Plans

The process outlined above (alongside existing Transport Strategies) will identify a series of highways mitigation measures required to support the level of growth set out in the Local Plan. These mitigation measures should be integrated into the infrastructure planning processes that are undertaken alongside the Plan preparation. This work would also feed into discussions with Local Planning Authorities around the development and implementation of CIL charging schedules. Early engagement on highways mitigation measures in the Local Plan process is re

The County Council will work with Local Planning Authorities wherever possible to identify indicative costs and appropriate funding mechanisms (both from developer contributions and other funding sources where appropriate).

As a general approach, the County Council would seek for specific mitigation measures required to enable a particular development to be funded by that development with funding secured via S106 through the planning application process, subject to them meeting the relevant tests listed in CIL Regulation 122. This requires that planning obligations should only be sought where they meet all of the following tests:

- necessary to make the development acceptable in planning terms;
- directly related to the development; and
- fairly and reasonably related in scale and kind to the development.

Mitigation measures required to address the cumulative impacts of a number of smaller development sites, or upon key inter urban routes that are affected by development occurring in more than one authority area, would be identified as candidates for CIL funding, and listed in the charging authority's Regulation 123 list. Wherever possible these schemes will be identified as strategic or local level schemes, and may also be appropriate to secure other funding source.

Where an existing highway capacity / congestion issue is exacerbated by growth coming forward (or existing conditions act as a barrier to development) the potential for CIL or S106 monies will also be considered along with other funding opportunities.

5.0 Post EIP Support/Pre & Planning Application Stages

Local Impact Assessments, such as Transport Assessments for larger sites and Transport Statements for smaller sites, should be undertaken as part of ongoing Site Allocations, and should be dealt with as part of the normal planning process.

Developers will be encouraged to engage in pre application discussions with HCC and the LPA. Developers will be required to fund all the technical aspects of the pre application discussion such as road safety audits and any modelling work. LPA's will also be charged for technical work where there are a large number of sites to assess. This will be provided at cost to the LPA's.

As part of the planning application process for large sites, developers will be expected to produce Transport Assessments which will include estimates of the number of vehicle trips and their onward destinations. Developers will be expected to test their proposals in existing HCC transport models where available, or alternatively develop their own models to determine the full highway impacts both at the immediate access junctions and, where necessary, at critical locations over the wider network. The modelling requirements will vary according to the scale and location of the development, and will be agreed at the initial scoping discussions as

part of the planning application process. This technical work will feed into the design of appropriate mitigation measures.

Through the EERM runs, HCC will continue to look at the implications of the cumulative impact of development growth and, where additional mitigation is identified, feed outputs into future updates of Infrastructure Delivery Plans. Future IDP updates will also be required on a regular basis to reflect UTP updates, IURS updates, and also changes to potential funding streams. HCC will continue to work with the LPAs on this through the existing Strategic Transport Issues Board LET process.

6.0 Neighbourhood Planning

Where necessary, the Local Highway Authority will provide a proportionate response to requests for assistance in the preparation of Neighbourhood Plans. As a minimum, it is expected that the outputs of modelling work and infrastructure requirements identified as part of the Local Plan process are incorporated into Neighbourhood Plans.

It will also be necessary for Neighbourhood Plans to incorporate the objectives of the Local Transport Plan (including Daughter Documents) and the outputs of any Urban Transport Plans or other transport strategies relevant to the area. Further information and access to the documents is available here:

<http://www.hertsdirect.org/services/envplan/plan/hccdevplan/neighbourhoodplanning/>

TABLE 1 LOCAL PLAN EVIDENCE REQUIREMENTS

Stage		Information required	Appropriate evidence	LHA role	HA Input
Plan Preparation	Issues and options consultation	Review of current network issues (infrastructure deficit) & schemes already identified	Urban Transport Plans, Congestion Hotspots, Inter Urban Route Strategy Herts Investment Infrastructure Strategy, Local Transport Plan	Highlight key highways issues on local road network related to proposed development locations & provide appropriate information from LTP and UTPs.	Highlight key issues for the Strategi RN
	Scenario & testing	Indication of locations likely to experience increased traffic flow / stress as result of options	Diamond (or high level runs of transport model if available)	Technical client for any modelling work. Assistance with interpretation of results	Involvement in discussions of model results where Strategic Route Network affected
Publication		Outline mitigation measures, broad cost estimates, indicative delivery timescales, identification of funding sources where known	Run of preferred option through highway model if required & if key issues identified. High level feasibility review of mitigation measures including assessment of broad costs & deliverability ¹	Technical client for modelling work. Provide advice guidance for feasibility review	Involvement in discussions in relation to any mitigation measures affecting SRN.
Submission		Confirmation that proposed measures mitigate against severe harm. Indicative cost estimates of measures, high level feasibility assessment and identification of funding sources	Refinement of designs & costs through modelling work. Indication of likely level of CIL/S106 sought & identification of funding gaps	Identification of potential funding opportunities	

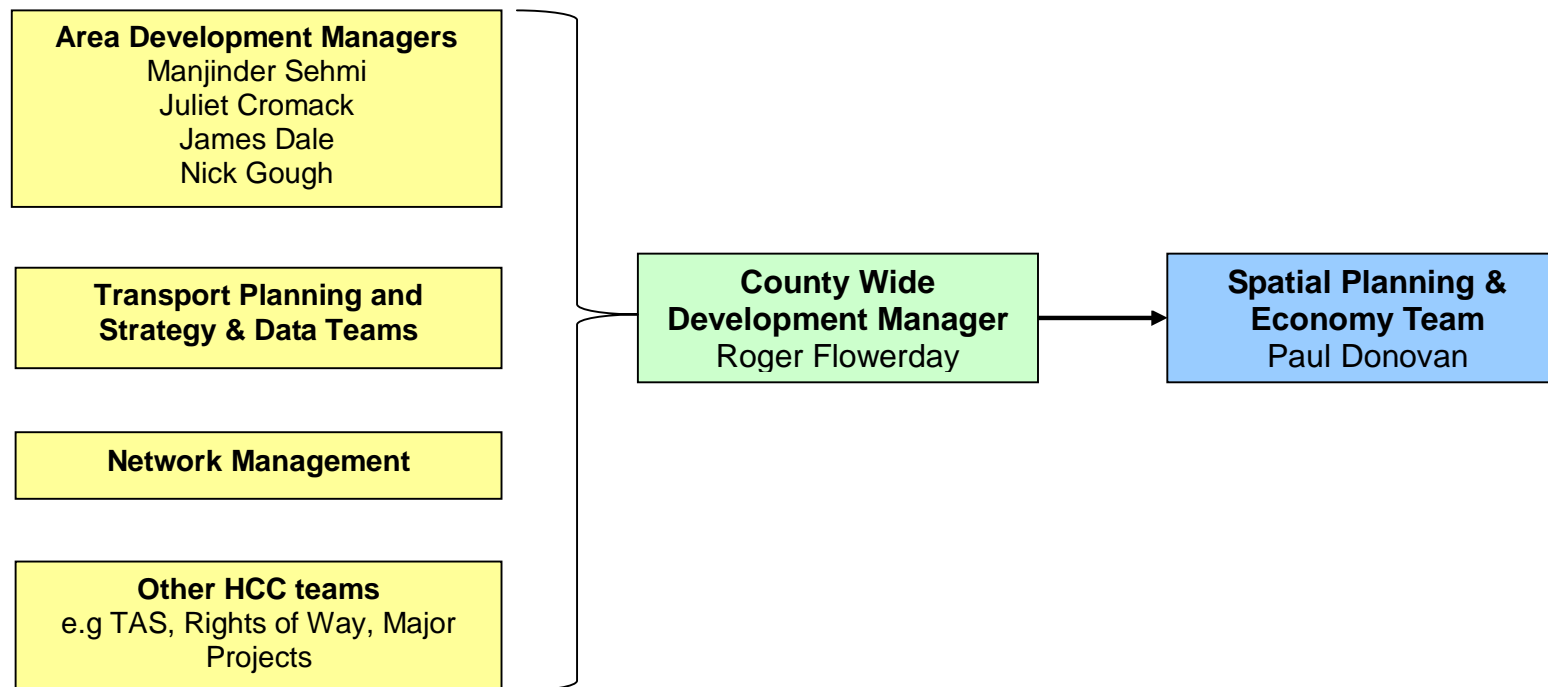
¹ High level feasibility review consists of desk based exercise of proposed scheme to identify any critical showstoppers to the delivery of the scheme (e.g. environmental or physical constraints) and to establish reasonableness of identifying appropriate funding sources.

TABLE 2 KEY CONTACTS WITHIN HCC

District	Development management contact and co-ordinator for Highways response	Strategy and Programme Manager	Network Management	Modelling & Data support	Coordinator for HCC response & queries on Timescale / Process
Countywide	Roger Flowerday			Sue Jackson	Paul Donovan
Broxbourne	Juliet Cromack	David Burt	Muthiah G / Chris Davies		
Dacorum	Nick Gough	Andrew Freeman	Geoff Bailey		
East Herts	Juliet Cromack	David Burt	Muthiah G / Chris Davies		
Hertsmere	James Dale	Lindsey Lucas	Sarah Atkinson		
North Herts	Manjinder Sehmi	Daniel Tancock	Ross Bevan		
St Albans	James Dale	Lindsey Lucas	Sarah Atkinson		
Stevenage	Manjinder Sehmi	Daniel Tancock	Ross Bevan		
Three Rivers	Nick Gough	Ian Thompson	Geoff Bailey		
Watford	Nick Gough	Ian Thompson	Geoff Bailey		
Welwyn Hatfield	James Dale	Rob Surridge	Sarah Atkinson		



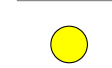




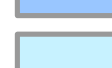

FIGURE 2 HCC HIGHWAYS LOCAL PLAN PROCESS FLOW CHART

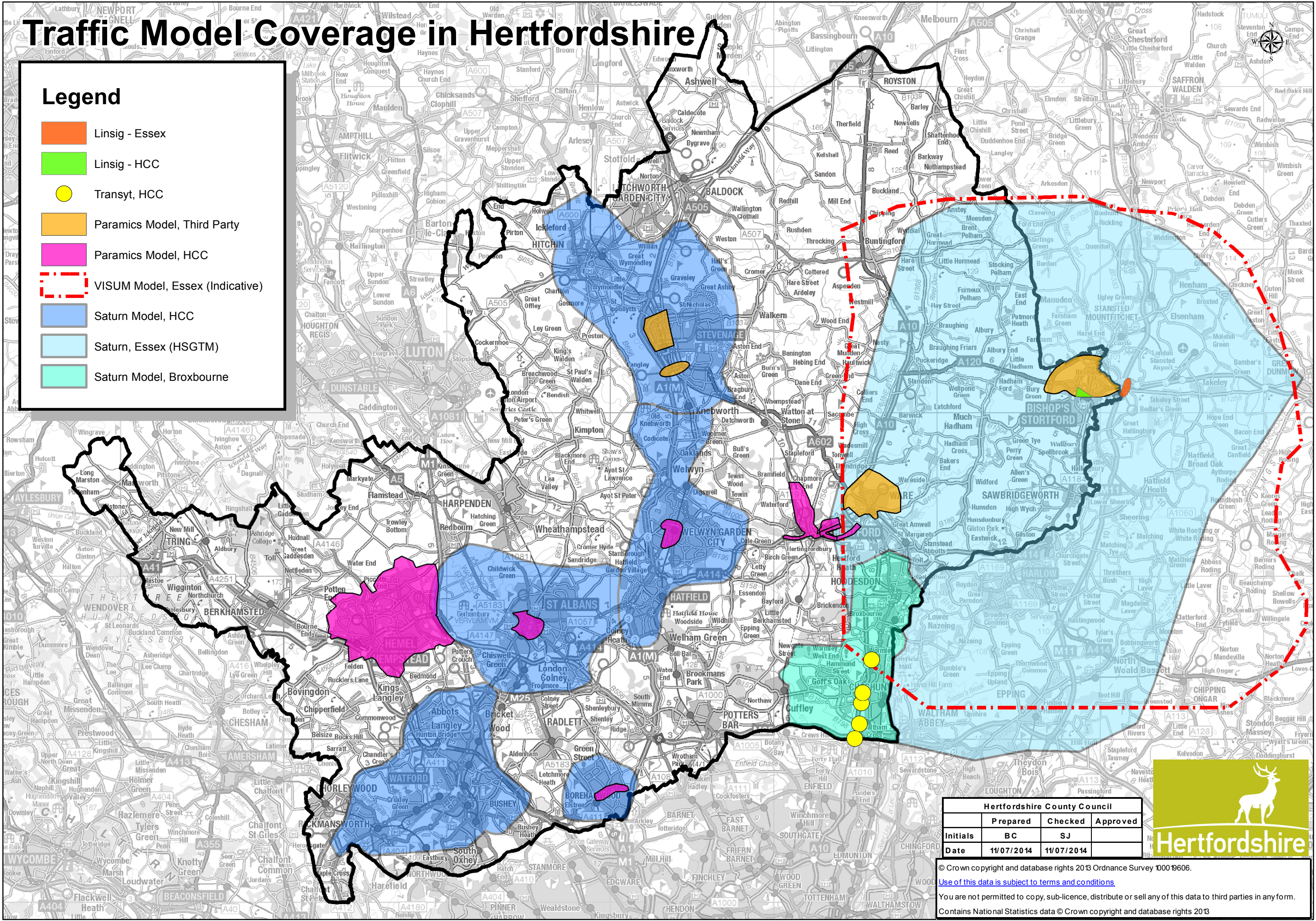
The flow chart below illustrates how the various individuals (as noted above) as part of their respective teams should feed their responses to the district Local Plan consultations to the appropriate Development Manager (DM). The DM should coordinate the responses received and then feed through to the Spatial Planning & Economy (SPE) team who will then issue the final consultation response.



Traffic Model Coverage in Hertfordshire

Legend

-  Linsig - Essex
-  Linsig - HCC
-  Transyt, HCC
-  Paramics Model, Third Party
-  Paramics Model, HCC
-  VISUM Model, Essex (Indicative)
-  Saturn Model, HCC
-  Saturn, Essex (HSGTM)
-  Saturn Model, Broxbourne



Hertfordshire County Council			
	Prepared	Checked	Approved
Initials	BC	SJ	
Date	11/07/2014	11/07/2014	



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TABLE 3 INDICATIVE MODELLING COSTS

Work required	Typical cost range	Notes	Estimated timescale
Diamond Model Set up costs	£6,000- £7,000.	Assumes refinement & update of model to better reflect local area. This work is required prior to any scenario testing.	4 weeks
Diamond Model subsequent option tests	£1,000-£2,000 per option	Assumes test in one future year in both time periods (including reporting)	2 - 3 weeks
Saturn / Paramics model set up.	£5,000-10,000	Assumes existing model with some limited local model validation and update of planning data / network to future year.	6 weeks
Saturn / Paramics model subsequent option tests (no mitigation measures)	£2,500-£4,000 per option test	Includes reporting.	3-4 weeks
Saturn / Paramics model subsequent option tests (with mitigation measures)	Up to £6,000 per test	Dependent on number of mitigation measures to be coded and outputs to be provided.	4-6 weeks
New model development (based on cordoning of HAM or EERM)	£40,000 - £50,000		3 – 5 months

Appendix 1 Transport Information to be provided by Hertfordshire County Council at no cost to District

- National 2001 Census data
 - Key statistic 1 – Usual resident population (borough/ district, settlement, ward or parish level)
 - Key statistic 15 – Usual mode of travel to work (borough/ district, settlement, ward or parish level)
 - Key statistic 17 – Car ownership (borough/ district, settlement, ward or parish)
 - Journey to work origins and destination data
- Existing Traffic data Annual Average Weekday flows (AAWD - 16 hour two way traffic counts,) am and pm peak hour flows from HCC's monitoring sites plus any additional ad hoc counts (as appropriate)
- TravelWise mode share counts for main urban areas - inbound and outbound head counts of people travelling to / from the town centres by car, bus, cycle and on foot during the am peak (0700 – 1000 hours). Data is available for all the key settlements on a 3 yearly basis.
- Land use survey – map showing existing land use from latest HCC survey.
- Assessment of access to key services (using Accession software) identification of areas within 10, 15, 30, and 60 minute travel times of stations, town centres and key destinations by bus / walk.
- Information on bus and rail services (from Intalink)
- County Travel Survey data – a profile has been produced for each borough/ district giving a summary on the levels of access to transport of borough/ district residents plus information on the mode, frequency and destinations of usual travel for work, shopping and education trips. Information on transport priorities within the borough/ district is also included.
- Average speeds and vehicle journey times on key routes within the main urban areas (analysed from Trafficmaster data). Maps are also available of key congestion hotspots.
- Collision data – plots of collision locations by severity over the previous 3 calendar years and identification of locations where clusters of collisions have occurred.
- DCSF schools census data - % of pupils travelling to school by different types of transport.
- TEMPRO forecasts – Department for Transport estimates of future year traffic growth.

Appendix 2 – HPG countywide modelling paper

HPG Development Plans Group 27 April 2015

Information on Countywide Transport Modelling Strategy

Author: Sue Jackson – Transport Planning and Data Team, HCC Highways

1. Purpose of Paper

This paper is an information note to members of the Herts Planning Group outlining the work being undertaken to develop a new Countywide Transport Model (COMET), which is being developed to meet our evolving transport evidence needs under the growth agenda.

2. Need for a new Modelling Approach

In the 80's and 90's Hertfordshire had a Countywide Transport Model (the Trips based County Transportation Study Model) which was used to provide evidence for major schemes such as the A414 Cole Green bypass and the A505 Baldock bypass. However since then with the policy emphasis on smaller scale more sustainable schemes and making best use of the network there was a shift towards developing smaller scale local models which could better test these type of scheme impacts.

These were supplemented by more detailed operational models developed to support detailed scheme design. Some additional area wide models have also developed by third parties to support planning application work.

At the same time Highways England (formerly the Highways Agency) developed a suite of regional models covering the East of England (including Hertfordshire) to support testing of the Regional Spatial Strategy and the draft East of England Plan. The suite of models is known as the East of England Regional Model (EERM). EERM has been used by HCC over the last 5 years to test more strategic schemes (e.g. A120 Little Hadham bypass for the options consultation).

This has led to a patchwork of bespoke traffic models across the county, supplemented by the regional model (EERM). The current model coverage is illustrated in Figure 1.

The current tools provide capability to:

- undertake operational assessment of plans or proposed interventions on the performance of certain key junctions and town centres across the county;
- undertake assessment of impacts that development proposals (including Local Plans) would have on the highway network performance for many of the individual towns across HCC (and some corridors such as the A1m) and to test the efficacy of mitigation proposals.

Under the growth agenda HCC is increasingly having to justify that its investments deliver value, in terms of calculated monetary benefits and economic and job growth (e.g. GVA).

Establishing evidence of appropriate quality is both a direct requirement of existing funding grants, and provides the basis to leverage additional investment for betterment of Hertfordshire residents and businesses.

There are some key gaps in our current modelling capability in relation to this:

- there is no representation of public transport or active modes;
- some urban areas have no models, eg Berkhamsted, Radlett, Potters Bar, Harpenden, Letchworth, Baldock and Royston);
- there is no representation of travel between the modelled areas;
- the current set of models are ageing and WebTAG states that models should not be based on underlying data which is more than 6 years old. Additionally most of the models have not been developed to the standards advocated in WebTAG for major scheme funding– i.e. the investment was proportionate to their intended purpose.
- There is little consideration of employment growth and the implications of known growth areas outside the county.

Key areas of ongoing work include the development of a Transport Vision for Hertfordshire to 2050 (Local Transport Plan 4) and ongoing development of District Local Plans. These need to be supported with evidence on the transport implications of future growth across the county, in addition to the isolated needs within individual settlements or across specific Districts.

This requires some means of understanding travel needs and accessibility across the county, in addition to those within individual urban areas, an identification of problem locations and a means of testing proposed transport schemes.

Although HCC has relied on the Highways England East of England Regional transport Model, EERM, to provide an understanding of county wide travel needs and performance this model is founded on data collected nearly 15 years ago and there is no commitment from the HA to maintain and update this model. Therefore it will not be possible to rely on this to model more strategic countywide impacts in the future.

It is therefore an appropriate time to review what we need in terms of transport evidence moving forward to determine if there are obvious gaps / issues with our current strategy and identify the best way and prioritisation of addressing these.

3. Agreed Modelling Strategy

Planning for transport interventions is usually undertaken in a number of stages. For example, the Department for Transport (DfT) business case model sets out 3 stages: strategic, outline and full. The detail of information and quality (and cost) of evidence increases with progress through these stages. It would be excessive to develop detailed and accurate evidence at the initial strategic stage where broad indicative information may be sufficient to decide on appropriate actions. Similarly if interventions have very high (or low) value for money, it would not be necessary to establish the value with particular precision. In general, evidence quality should be greatest for larger investments, investments where the value is uncertain and towards the final stage of committing the investment, where a detailed understanding of the impacts is required to be justified.

The location and form of the next generation of transport schemes in the county will be identified from the Transport Vision work. It therefore does not make sense to develop a fully detailed model in all areas at this stage. Instead a tiered approach to model development has been identified which is a pragmatic solution whereby initially effort would focus on development of the understanding of current travel patterns and the performance of the network

(particularly the movements between the urban areas and corridors) with an initial high level inter-urban county model to complement the pre-existing urban models.

At this stage, the capability will be able to provide information on inter-urban travel, and identify key congestion spots on these roads, along with public transport movements as well as accessibility across the county for particular areas. This will help identify the nature of problems that exist in the transport network or may emerge and prioritise where interventions may be required.

At this stage the model will not be suitable for underpinning evidence in line with WebTAG for business cases or funding requirements and will require further refinement and investment for this purpose.

The second stage of model development would then look at refining the model in given areas in order to develop an evidence base which is capable of meeting WebTAG guidance.

The advantage of this is that it offers an effective cost way to develop the county wide capability, whilst ensuring it is proportionate with need and that the model investment costs are focussed to deliver best value and that planned costs of use (including model run times) should be as low as reasonable given the sophistication and extent of questions posed.

4. Model Development Approach

In the short term (the next 3-4 months). Origin-Destination data will be collected as part of the model development process and will provide an understanding of the travel pattern of trips by mode across the county, in particular inter-urban movements. This will be submitted as a Technical Note Pattern of Travel Across Hertfordshire giving a better understanding of current travel patterns to inform visioning and scheme development work in the short-term.

In the medium term (up to the end of 2015/early 2016) the model will be developed as a multi-modal variable demand and assignment model (for both highway and public transport trips) with the capability to:

- Identify present and future year highway hotspots / areas of stress; and
- Be used as a sifting and scenario testing tool for both highway and public transport policy and scheme options.

Efforts of model development will ensure the model will represent inter urban movements. It should be noted that whilst the model will have been developed according to DfT WebTAG criteria (in terms of the model architecture and the data feeding into it), at this stage the model will not yet be suitable for business case development (as it will not be fully WebTAG compliant in terms of the calibration and validation of the model outputs against observed travel data at the detailed area level)

At this stage it is envisaged that the model could help emerging local plans to identify the best locations for growth along with the cumulative impacts of development. The model could also be used for initial problem identification and as a sifting tool for early transport interventions and scheme prioritisation. Local plans at a later stage of development which have already used pre-existing models such as SHUM and WHaSH with HA signoff should continue to make use of these.

In the longer term it is the intention that the model will be further enhanced where it is required / appropriate so that it meets WebTAG criteria for both inter and intra urban movements. This will ensure that Countywide Model of Transport (COMET) will be suitable for the following:

- Development of business cases for new tranche of major schemes;
- Evaluation of new strategic passenger transport options;
- Evaluation of the user economic benefits of different packages of transport projects;
- Identifying best locations for development with HA signoff (including Local Plan work);
- Providing inputs for the next LTP development process;
- Assess impact of road works and provide evidence base for charging utility companies for major road works; and
- Testing impact of demand management policies.

Figure 2 provides a summary of the key short, medium and long term outcomes of the model development and the objectives these will meet.

It should be noted that It may still be necessary for HCC to make use of existing, or develop new, town-wide models and junction micro-simulation models, when and where necessary. The intention is that the countywide model would provide the inputs to inform these models.

5. Model Format

It is proposed that the Highway transport model will be developed in Saturn with the model area being made up of the following:

- Area of detailed modelling (Hertfordshire) – this will contain small zones (below census Medium Super Output Area level). Within this area the road network will be detailed to include all A, B and the majority of C roads and key rat runs.
- Rest of fully modelled area – those areas outside the county where the impacts of interventions in Hertfordshire are quite likely to be felt (eg Luton, Aylesbury, Harlow). In this area all trip movements will be represented but there will be larger zones and less network detail. More strategically important junctions will be represented.

There is also an external area (known as a buffer network) which represents the rest of Great Britain. The main purpose of this is to ensure that external traffic enters the fully modelled area at the right locations.

HCC have been working with AECOM to define the network and zone structure.

Figure 3 gives an indication of the proposed highway model network.

5. Next Steps

The main area of work over the next few months is the collection of travel data. The main source of data will be the use of mobile phone data to identify travel origins and destinations (as an alternative to road side interview surveys). This will be supplemented by traffic count data, journey time data and information on travel patterns from the Census, County Travel Survey and National Travel Survey. Data on rail passenger ticketing has already been obtained and liaison is underway with bus operators to obtain information on bus travel patterns which if obtained will allow representation of key bus travel patterns in the model.

This information will be analysed to build up a picture of countywide travel patterns by mode. This will be shared in the form of a technical note to be produced at the end of Summer 2015 as well as being used directly to develop the origin destination matrix within the model.

In parallel work is underway to develop the network and zone coding.

By late 2015 a base model will be available representing travel patterns across the county by both highways and passenger transport models. This will then be populated by proposed development data (including Local Plan growth) to develop a future year forecast model by early 2016.

It is then the intention to use this forecast model to test packages of potential schemes emerging from the Transport Vision work.

6. Implications for Districts

The timescales of developing the model are likely to preclude it from being actively used for the current round of Local Plans where these are already progressing to submission. However it is intended that districts will be able to make use of the model to identify the best locations of strategic growth for the next round of Local Plans / Local Plan reviews from 2016 onwards. Any onward testing of development scenarios would need to be directly paid for by the Districts (as per the Local Plan protocol).

The model will also help the County Council identify and test the effectiveness of the next generation of major transport schemes to enable proposed development growth.

Further information on the potential use of the model in relation to Local Plan work is included as Frequently Asked Questions (FAQs) in Appendix A.

Appendix 2A - FAQs covering Countywide Model (COMET) and its Relationship to the Local Plan Process

Is it worth us continuing to invest in the development and option tests of current suite of models?

The countywide model will take time to develop and will not be available for use until early 2016 which we recognise is too late for a number of the district Local Plan development timescales.

The current suite of models give detailed representation of the highway network in most of the key urban areas and therefore continue to be an appropriate platform for identifying the detailed highway impact of proposed development and providing evidence for the Local Plan process. The models have been calibrated within urban areas and therefore continue to be the best means of identifying impacts and testing potential mitigation schemes within these areas.

The main benefit of the new countywide model will be to help HCC identify the next generation of strategic infrastructure schemes, both highway and public transport, that can then be taken account of in the next round of Local Plan development. With a much improved strategic evidence base the model should also enable us to better identify with districts the best locations for ongoing growth.

Given the Countywide model will not be fully WebTAG compliant in the short / medium term will its use not be open to challenge by the HA and others?

The model is being developed to ensure that it is WebTAG compliant in terms of its set up (ie a Variable Demand Model representing different modes of travel) and in terms of the quality of the data and coding underlying it. In the medium term effort will be focussed on getting the key interurban and more strategic travel patterns well represented and therefore it won't necessarily be fully calibrated / validated to WebTAG standards in all areas. It will therefore be suitable for generating evidence at the plan preparation stage but not the publication / submission stage.

It should be noted that there remain some issues with WebTAG compliance with the current suite of models (eg with the age of data in some of the models).

What will the medium term model be suitable for in terms of the Local Plan Process?

The COMET model will be ideal for determining the best locations for key development sites during the plan preparation (and scenario testing) stage, for example to support the Local Plan 2 / Local Plan review process. It could also potentially be used for some early identification of locations where mitigation measures are required however detailed testing of the effectiveness of the mitigation measures would require either further model refinement in those areas or the use of more detailed operational models.

How can you ensure that the timescales remain on track and there is not slippage in the model development?

The current Transport Planning contract finishes in March 2016 so it is crucial that the medium term model (including the future year forecast version) is complete and available for ongoing use by then.

A pragmatic staged approach has been developed and HCC will be closely monitoring progress and payment against these defined stages.

HCC and AECOM are engaging in fortnightly teleconferences and/or regular workshops to provide updates on project progress.

How will the model take into account the impact of development outside Hertfordshire?

The model area includes key neighbouring areas such as Luton, Aylesbury, Harlow and North London to ensure that traffic is fed in to Hertfordshire at the correct points on the network. The future year version of the model will incorporate the known Local Plan development proposals in these areas (as of Autumn 2015). This model will potentially be able to assess the likely impact of developments outside of Hertfordshire on the transport network within Hertfordshire. However this model will not be suitable for testing the impact of development within the county on areas outside of Hertfordshire.

What information will you need from the districts?

The key information required will be up to date development information. HCC have already been liaising with districts to gather information on Local Plan growth (housing) and there will be another round of checking the development proposals in early Autumn 2015 (and allocating development to the defined model zones). To date information gathering has focussed on housing growth, however we will also require information on the likely size, type and location of employment growth along with other land uses (eg retail and leisure).

How does the model interact with the Essex Visum model / the Central Beds model? Is there a danger of different models showing different results?

There is no direct link between the models however some data used by the Essex and Central Beds model will be used as part of the COMET model development. The underlying development assumptions should also be broadly similar so at a strategic level it would be expected that the models will show the same areas of network stress.

It should be noted that the Essex Visum model is highways based and does not explicitly model public transport and that the Central Bedfordshire model is based on aged data and an update is likely to be required.

Will the existing Local area models be maintained?

The current urban models represent the local road network in more detail (particularly the Paramics based models) and therefore in many cases will be the best means of testing detailed transport schemes and smaller scale development within urban areas.

The COMET model could be cordoned in future to provide updated information on trip patterns which can then be fed into the Local Area models for more detailed assessment. This will be dependent on the assessment work and scheme testing required in a particular urban area.

Depending on the nature of the assessment work / scheme testing alternatively the COMET model could be refined in that particular urban area. This is the most likely scenario if scheme impacts are anticipated beyond the town in question.

How can we influence which areas of the model will be enhanced in the longer term.

The main influence on where the model will be enhanced is likely to be the location of any identified major transport schemes (from the HCC Transport Vision work) as a fully WebTAG compliant model will be required to support business cases to the DfT.

However early engagement with HCC in relation to the ongoing Local Plan development process (in particular the timetable for any review work) and the likely evidence needs is crucial. It would be helpful to have this information by early 2016 to assist with ongoing model development planning.

It would also be helpful to maintain dialogue with districts on other potential schemes coming forward which may require modelling support (eg town centre masterplanning work) to determine if the COMET model is the best methodology to support this.

Will there be an additional cost to Districts for the Countywide model

HCC is proposing to seek a contribution from individual districts for ongoing development work in 16/17 which is likely to be around £10k. This will fund ongoing overall model development and refinement to further improve the model and keep it updated ensuring it remains suitable for use by partner organisations. .

Any ongoing Local Plan scenario testing work will need to be paid by the district (as per the current Local Plan protocol). Districts will also be expected to cover the costs of any testing work associated directly with their schemes (eg Masterplans).