Document Control Sheet

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Record of Issue

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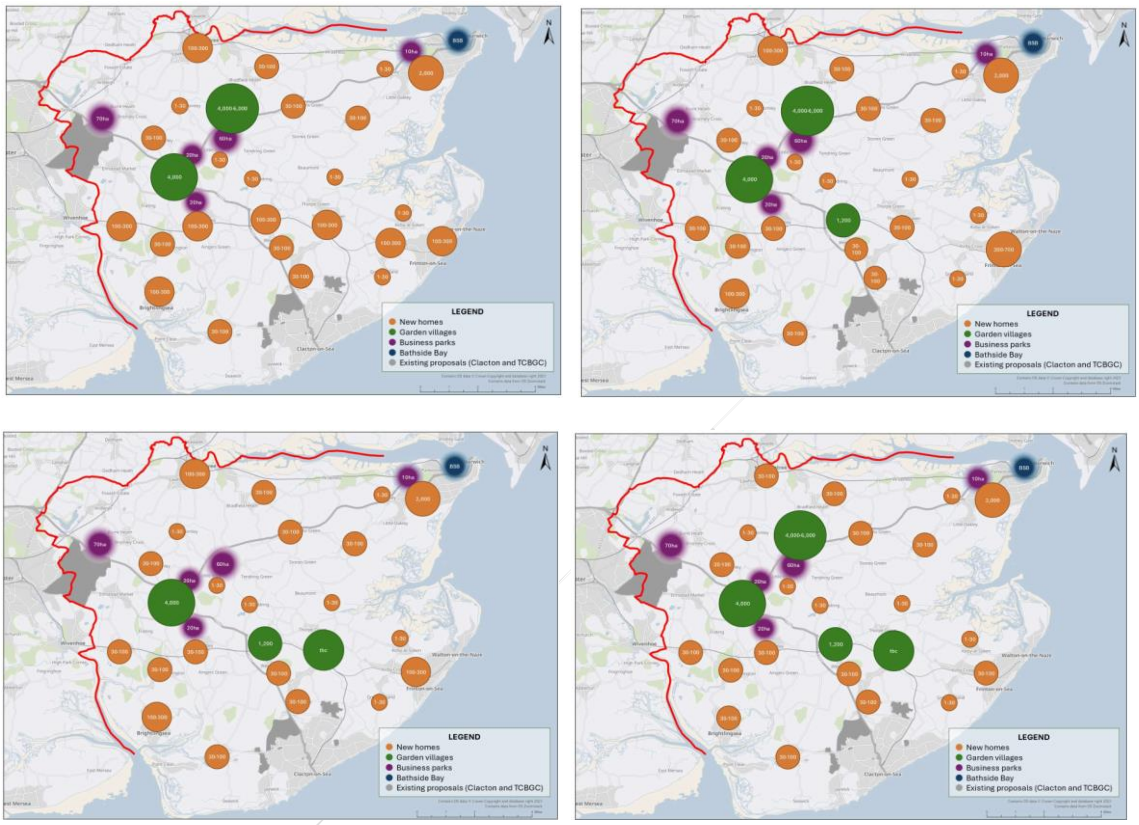
Distribution

Organisation	Contacts	Comment
ECC	AL, IT	For review
TDC	GG, PW	For review

1 Project Identification & Objectives

1.1 Introduction

In September 2024 Essex County Council commissioned Essex Highways, on behalf of Tendring District Council (TDC), to conduct an initial, high-level, qualitative transport assessment of TDC's emerging spatial options, which are being considered in the review and update of its Local Plan. The four options are presented below.



The qualitative exercise focussed on strengths and weaknesses of existing transport infrastructure and services to accommodate garden villages with respect to opportunities for public transport use, active travel and self-containment of trips. The analysis concluded that none of the spatial options for garden village locations could be ruled out and each presents unique challenges. To make informed decisions regarding the location of garden villages and explore alternative options, the analysis suggested that it would be useful to explore the deliverability and affordability of sustainable travel interventions in order to confirm suitability of locations and sizing of garden villages; and determine likely levels of sustainable travel and internalisation of trips.

The suggested approach would provide transport evidence related to the size and location of garden villages against a backdrop of continued growth in centres across Tendring, and identify the approach to sustainable travel that can be taken to mitigate severe impact on the transport network and support wider sustainability aims. This will then inform and provide focus for

transport modelling tests of spatial options. These tests would be able to assess the impact of spatial options including garden villages and test the effectiveness of the sustainable travel approach to mitigate severe impact.

By taking this approach, the transport evidence will be more robust and aligned with NPPF requirements. It will also demonstrate a sustainable travel first approach, which can be lost when transport evidence overly grounded in highway transport models.

1.2 Study Objectives

The project aims to inform the sustainable travel approach to garden villages against a backdrop of continued growth in centres across Tendring and provide transport evidence for spatial options of Local Plan growth.

The level of sustainable travel will be influenced by a range of factors including proximity to existing centres, land use planning policies, availability of existing and new public transport, active travel infrastructure, and design and parking polices.

Accordingly, the study objectives are to:

- Identify the impact of spatial options on the transport network to support location assessment with respect to existing transport infrastructure and services
- Identify affordable sustainable transport interventions and the contribution to reducing car trips
- Inform the selection of preferred spatial options and garden village sizes along with sustainable travel measure and assumptions
- Test preferred options with and without sustainable travel assumptions in the transport model
- Prepare transport evidence to support the Local Plan review (where is the growth, why is the growth there, what is the impact, how will the impact be mitigated)

The approach to transport evidence and assessment will also need to take into account emerging work on spatial options by the planning authorities and reflect forthcoming government targets for housing growth. Accordingly, the project includes time for discussion with TDC to agree key assumptions and for TDC to input any key changes to spatial options that needs to be reflected in the study. A pause prior to running transport models has also been built into the project plan in order to support this approach.

2 Tasks

In order to deliver the project, the following stages and tasks are proposed. It is expected that there would be a pause after Stage 2 to enable the initial assessment to be aligned with the publication of NPPF guidance in January/February 2024. There will also be regular fortnightly progress meetings to provide opportunity for TDC to shape key assumptions and share information on changes to spatial options or provide further details on spatial options.

Stage 1: Assessment of current conditions	**Task 1**	GIS mapping of sustainable travel alternatives (e.g. public transport routes and frequencies); and sample journey time and costs
	Task 2	Existing map of highway congestion; and sample journey times and costs
Outcome 1: Clear understanding of existing issues to aid assessment of spatial options		

Stage 2: Initial assessment of spatial options	**Task 3**	Impact of spatial options (district wide growth and then garden village [GV] options)
	Task 4	Analysis of spatial options on the current network based on current travel behaviour
	Task 5	Opportunities to enhance sustainable travel for spatial options and possible impact on internalisation and sustainable travel
	Task 6	Deliverability and affordability of sustainable travel options
	Task 7	Optimise size and position to GVs to support deliverability and affordability criteria → evidence for GV options
Outcome 2: Initial assessment of spatial options and location/size of GVs; and recommendations for modelling		

Stage 3: Transport modelling	**Task 8**	Set up and run reference case models
	Task 9	Add Tendring's additional growth (without GVs)
	Task 10	Add GVs with and without mitigation measures
	Task 11	Analysis and findings
Outcome 3: Impact on transport network of spatial options with and without sustainable travel assumptions and mitigation		

Stage 4: Dissemination	**Task 12**	Compile technical note (findings from Stages 1-3)
	Task 13	Presentation of key findings and recommendations
Outcome 4: Evidence to support preferred spatial options, location and size of GVs and approach to sustainable travel		

3 Methodology

The detailed methodology for the individual tasks is presented below. In order to facilitate analysis prior to transport model runs, the spatial options will be split into a sector system within the district of Tendring. This will help to draw out and emphasise current and future issues and provide a basis for identifying how sustainable travel could be optimised. This will support assumptions for levels of sustainable transport and internalisation of trips in transport model tests.

3.1 Stage 1: Assessment of Current Conditions

Task 1: GIS mapping of sustainable travel alternatives and sample journey time and costs

This task aims to present existing sustainable travel alternatives in and around Tendring and highlight any limitations. This will be achieved drawing on previous analysis and will plot on GIS:

- Rail stations and associated frequencies of trains (at least 30 minutes, 60 minutes and 90 minutes)
- Bus service frequencies – utilising Bus Network Review 2022 data
- Bus stop departures per week – utilising Bus Network Review 2022 data
- National cycle network and other cycle routes
- AQMA areas (if any)
- Park and Ride in Colchester (since key destination)
- Current levels of sustainable travel (by sector)
- Key attractions including centres of employment, retail, education and health
- Information on public transport, cycling and e-bike journey times and cost for a selection of routes to key attractions

This information will be utilised in Task 3 when propensity of sustainable travel in spatial options is assessed.

Task 2: Map of highway issues; and sample journey times and costs

Like Task 1, this task aims to present the existing issues, but for highway congestion in and around Tendring. Current congestion levels (speed compared to free flow speed) will be plotted for both the AM and PM peak hours which will highlight key areas experiencing high traffic and will provide a clear overview of the most affected routes which will help to understand the current traffic patterns and bottlenecks across the district and key nearby destinations such as Colchester.

This will use the existing 2019 base year model whilst validation is finalised on the updated 2023 model. A cross-check will be undertaken once this model is finished to ensure that the congestion points are similar.

As for sustainable travel alternatives, information will also be provided on car journey times and cost for a selection of routes and current levels of private car use.

The outputs from both of these tasks will be presented in a set of summary slides and will support the understanding of the existing issues to help the assessment of the spatial options at a sector level.

3.2 Stage 2: Initial Assessment of Spatial Options

Task 3: Impact of spatial options

Growth from the proposed garden villages will be grouped to the defined sectors. This will facilitate the impact of growth on the transport network.

For each sector, information from Task 1 and 2 will be used to estimate propensity to travel by different modes, based on existing alternatives and travel behaviour. In addition, information will be obtained for likely destinations by sector.

In this way we will build up high level information on the possible impact of the spatial options on the transport network.

Task 4: Analysis of spatial options on the current network based on current travel behaviour

This task will interpret the information compiled in Task 3 in order to assess the pros and cons of spatial options with garden villages. In particular, identifying the impact of spatial options on:

- the existing highway network and congestion
- propensity for sustainable travel by public transport, cycling and e-bikes
- propensity for internalisation /short distance travel by walking/cycling

This will help to identify sectors in which growth could reasonably be expected to travel more sustainably – due to availability of sustainable travel alternatives, proximity to attractions and evidence of current travel behaviour – and where growth might lead to problems on the highway network such as congestion.

The next task considers mitigation measures, how the transport network might change in the future and expected travel behaviour trends.

Task 5: Opportunities to enhance sustainable travel for spatial options and possible impact on internalisation and sustainable travel

This task aims to identify opportunities to mitigate impacts through encouraging sustainable travel. i.e. looking for sustainable travel opportunities before considering highway capacity interventions.

We will do this by identifing opportunities to enhance sustainable travel at a sector level. This could include enhancing existing bus services, existing train services and options to tie into expected improvements. It would also consider measures including mobility hubs, and land use and parking policies.

This information will then be used to determine the impact on trips, at a sector level, from growth. Through such opportunities what could be the impact on:

- sustainable travel (public transport/e-bike/cycling)
- internalisation of trips (walking/cycling)
- levels of deliveries

Task 6: Deliverability and affordability of sustainable travel options

Before re-assessing the spatial options in the light of sustainable travel opportunities, this task considers deliverability and affordability in the context of spatial options. For example, it would identify if it could be practicable to connect to a rail station or introduce high quality public transport alternatives and affordable to do so.

This analysis would usefully inform sizes of development along a corridor – establishing if there is enough development to meet the capital costs of introducing high quality public transport (such as BRT or rail frequency changes); and enough potential demand to meet running costs. This analysis will be facilitated by utilising Capex and Opex information from ECC's rapid transit operational planning research or RTS at Tendring Colchester Borders Garden Community.

Task 7: Optimise size and position to garden villages to support deliverability and affordability criteria

For the different spatial options and scenarios provided by TDC, strengths, weaknesses and opportunities will be assessed and presented in tabular form. For each option, these will focus on the public transport connectivity (both bus and rail), location to over-capacity junctions and will present opportunities for potential routes, services etc.

This table will be presented using the following format:

	Strengths	Weaknesses	Opportunities
Option A			
Option B			
Option C			
Option D			

The SWOT analysis will then be used to inform for the spatial options:

- The potential to shift to sustainable transport
- The potential for a reduction in distance/trips travelled.
- Highway impact

In discussion with TDC, this analysis will inform:

- Refinements to spatial options to be tested
- Assumptions for sustainable travel interventions (e.g. changes to rail frequencies or new BRT lines)
- Assumptions for internalisation (trips being removed from the highway network due to reflect expected sustainable travel policies and interventions)

At the end of Stage 2 the outcome will be options with sustainable travel mitigation measures and assumptions that are able to be tested in the transport model. Only the major mitigation measures, expected to be around 10-20, will be considered for the larger development sites (those with at least 1,500 dwellings). The proposal allows sufficient time for discussion of this initial assessment with TDC and ECC. In addition, it is expected that that work will be paused at the end of Stage so that options to test in the model can be compared with NPPF housing growth targets which are expected to be published in January 2024.

3.3 Stage 3: Transport modelling of spatial options

Stage 3 allows for the testing of two spatial options with and without sustainable travel assumptions and other key mitigation measures. The tasks in this section have been costed using the assumption that the following models will be produced and analysed.

	Modelling assumptions			Analysis	
Description	Year	Sustainable travel / Internalisation assumptions	VDM (all time periods) or fixed trip assignment (AM and PM only)	AM	PM
Reference	2041	No	VDM	No	No
Spatial option 1 without interventions	2041	No	Fixed	Compare with reference	Compare with reference

	Modelling assumptions			Analysis	
Description	Year	Sustainable travel / Internalisation assumptions	VDM (all time periods) or fixed trip assignment (AM and PM only)	AM	PM
Spatial option 2 without interventions	2041	No	Fixed	Compare with reference and spatial option 1 without interventions	Compare with reference and spatial option 1 without interventions
Spatial option 1 with interventions	2041	Yes	Fixed	Compare with reference and spatial option 1 without interventions	Compare with reference and spatial option 1 without interventions
Spatial option 2 with interventions	2041	Yes	Fixed	Compare with reference and spatial option 2 without interventions	Compare with reference and spatial option 2 without interventions

All modelling undertaken within this section will utilise the recently updated North Essex Model, which has been revised to take into account changes arising from Covid-19 and revalidated to 2023 traffic counts.

If there are any significant changes to the models required, additional fees will be provided separately.

Task 8: Reference Case Models

To benchmark and test the Local Plan spatial options, a Reference Case is being developed as part of a developer test, and as such, will be used for the purposes of testing the Local Plan spatial options. This Reference Case will be based on Uncertainty Logs which account for the current Local Plan period to 2033. Anything after this will be based on NTEM 8.1, the latest national assumptions on background growth. These models will incorporate only the committed and near certain developments, along with the growth factors projected by NTEM. Comparisons between the Reference Case Model and Local Plan Model will allow the potential impacts of the proposed allocations on the existing highway network to be determined. It should be noted that a locally adjusted version of NTEM 8.1 is used which accounts for higher levels of recent delivery

in Tendring than is reflected in NTEM 8.1. In the progress meetings, information will be shared on the level of background growth used in the reference case model, to ensure TDC is comfortable that it is a sensible assumption to apply.

If additional changes are required to the Reference Case model assumptions this is out of scope and will be costed for accordingly.

Task 9: Add Tendring's Additional Growth (Garden villages)

For the purposes of this proposal, it is assumed two of the garden village options will be modelled using the updated base year model. The development quantum will be added on top of the background growth, with no constraining to NTEM to allow for modelling of the development's impact on the transport network.

Specific network changes, proposed as part of the Local Plan e.g. access arrangements for development or internal routes which act as through-roads to the wider network, will be included in the forecast network.

The two garden village options will be modelled with and without interventions, namely:

- without sustainable travel/internalisation assumptions
- with sustainable travel/internalisation assumptions

Trip generation for the proposed allocations will be calculated using the bespoke Tendring trip rates, and the forecast growth calculations will be undertaken.

Task 11: Analysis

A range of model outputs will be produced, including flow plots, congestion levels, junction Level of Service plots and journey time statistics. Comparison between the reference and spatial options will be made.

The analysis that will be conducted is shown in the table above (modelling assumptions and analysis).

3.4 Dissemination

Task 12: Technical note

A technical note of evidence will be prepared to outline the approach taken in the analysis and highlight the key findings. The report will:

- Justify the location of Garden Villages;
- Justify the size of Garden Villages; and
- Demonstrate the sustainable transport strategy.

Task 13: Presentation

Allowance is also made to produce a summary presentation highlighting key findings.

3.5 Meetings

Allowance has been made for eight hours of meetings during the project as follows:

- Progress meeting with TDC and ECC (4 x 1hour)
- Discussion of findings and assumptions with TDC/ECC (2 x 1 hour)
- Review of method with National Highways and its technical advisor Aecom (2 x 1 hour)

As mentioned, the progress meetings will also be used to obtain TDC views on assumptions and for TDC to share information with ECC and Essex Highways on emerging spatial options.

4 Project Team

Jacobs Project Manager: Charles Freeman

Jacobs Project Director: Jenny Jones

Jacobs Task Manager: Theofili Apostola

Jacobs Project Principal: Martin Whittles

Key Technical Team Members: Alessandra Bernardi, Theofili Apostola, Kar Carr

ECC Project Manager: Ian Turner

5 Check and Review Strategy

The following will check and review the outputs and modelling:

Checking: Alessandra Bernardi, Theofili Apostola

Review: Claire Stephens

Approve: Charles Freeman

Verify: Martin Whittles

6 Risks

The table below summarises the current risks and proposed mitigation measures which exist for the study.

Risk Number	Risk Detail	Start Date	End Date	Risk Rating (High, Medium, Low)	Mitigation	Risk Owner
1	Jacobs selected resources or replacements not available.	November 2024	January 2025	M	To be discussed at weekly resource meetings	EH
2	Changes to scope arising during the project – such as variations to the assessment case	November 2024	January 2025	M	An early warning will be issued if there are any changes to the options	EH/ECC
3	Alignment with other ECC strategies, policies and ongoing works.	November 2024	January 2025	Low	Close liaison with relevant ECC officers to ensure consistency in approach and ability to capture relevant outcomes from other studies. Jacobs PM and Assistant PM to ensure consistency is maintained through liaison with the ECC project lead.	EH/ECC
4	Stakeholder 'buy-in'.	November 2024	January 2025	Low	Ensure key stakeholders, including National Highways, are kept informed throughout the Local Plan study and are given the opportunity to input into the process.	ECC/EH
5	Model runs do not provide expected results and further investigation, or model runs are needed	November 2024	January 2025	Medium	There is a possibility that the proposed developments will cause significant effects that require further investigation within the transport model. The cost of pursuing any options would then be set out in a further modelling proposal or as a compensation event.	EH
6	Requests for further analysis	November 2024	January 2025	M	Communicate the length any additional requests for analysis beyond the scope of works might take. EWNs and CEs to be issued as required and agreed with the client.	EH
7	Model runs do not converge	November 2024	January 2025	Low	The CTM has been used for numerous scenarios. We have assumed that if the model doesn't converge, we will only include one attempt to	EH

Risk Number	Risk Detail	Start Date	End Date	Risk Rating (High, Medium, Low)	Mitigation	Risk Owner
					resolve this. Any further convergence tests are not included in this scope of work. Convergence should be less of an issue than NTEM 7.2 due to the lower levels of growth in the model.	
8	Area of Detailed Model, as agreed as part of the Base Year update, doesn't include the garden villages / spatial options	November 2024	January 2025	Medium	Ensure that this risk, and modelling outputs, are caveated to TDC	EH

7 Deliverables, Programme & Indicative Costs

The costs for each task are set out in the table below. Stage 3 is not expected to proceed until NPPF district housing targets are confirmed.

7.1 Proposed Deliverables, Programme and Fees

Stage		Deliverable	Estimated date of deliverable	Price
1	Assessment of current conditions	Mapping of travel patterns and challenges to inform location assessment	December 2024	£11,926
2	Initial assessment of spatial options	Preferred options and sustainable travel approach	January 2024	£26,836
3	Transport modelling	Assessment of options and sustainable travel approach	February 2025	£32,211
4	Dissemination	Technical note and presentation	March 2025	£5,413
			Total	**£77,385**

The project timeline and specific dates will depend on the timely receipt of information regarding the spatial options, including geographical data, land uses, number of dwellings, and employment areas.