DRAFT Technical Note

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Project:	**Hertfordshire Transport Vision**	Job No:	**60279140**
Subject:	**High level project appraisal of long list of schemes for Hertfordshire Transport Vision**		
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1.   Introduction and Purpose

1.1.   Hertfordshire County Council (HCC) has engaged AECOM to review and collate a long list of major strategic transport improvement schemes for the Hertfordshire 2050 Transport Vision. This note sets out the methodology and results of collating together the long list of transport schemes, identifying additional schemes and evaluating this list of schemes in order to prioritise those that best meet the objectives of the Transport Vision and develop a shorter list of schemes to be assessed using DfT's Early Assessment Sifting Tool (EAST).

1.2.   This note accompanies the final proposed short list of projects and their assessment in order to explain the approach in reaching this point.

2.   Structure

2.1.   This note is structured as follows:

- **Background:** This section describes the purpose of Hertfordshire's Transport Vision and the work in developing it to this point and the next steps to finalising the Vision;
- **Methodology:** This section describes the approach taken in developing the long list of schemes and then evaluating them, which includes finalising a long list of options and evaluating these against the Transport Vision objectives to determine which schemes better meet the needs of Hertfordshire's Transport Vision;
- **Transport Vision Objectives and Scoring:** This section summarises the transport vision objectives developed by HCC for the purpose of sifting the long list of options and the scoring system used to evaluate each of the schemes against these objectives;
- **Evaluation of Schemes:** This section presents the results of scoring the long list of options and how this led to a final short list of options. It describes the more detailed assessment of the short listed options, known as EAST; and
- **Next Steps:** Although touched on briefly in the Background section, this will set out the immediate steps to follow this work in progressing the Transport Vision.

3.   Background

3.1.   HCC is currently developing its 2050 Transport Vision as part of a review of its Local Transport Plan (LTP3). The LTP3 was adopted in 2011 and sets out Hertfordshire's vision and strategy for the development of transport in the county over the long term. The review is taking place because the policy context has changed since 2011 along with changes to forecast population growth in the local area, therefore a review of the County's transport planning framework and vision is

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necessary to ensure the future transport network can support the growth and aspirations of the County.

3.2. As part of Stage 2 of the 2050 Transport Vision, a list of short, medium and long term transport schemes has been developed. AECOM have been engaged to support in reviewing and sifting the long list of schemes in order to generate a shorter list of schemes, which will then be progressed further to determine feasibility and appreciation of the effectiveness of the proposed intervention.

4. Methodology

4.1. Initially a long list of options had already been generated from the *Hertfordshire 2050 Transport Vision Stage 2: Technical Report* where a total of 39 schemes were identified for either the short (2015-2021), medium (2021-2031) or long (2031-2050) term.

4.2. For each of these schemes, a proforma had been completed as shown in the example in Figure 1. This formed a high level summary of each scheme.

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A414 Public Transport Expressway
Source: Officer Workshop

Scheme information

Concept level scheme to provide an east-west public transport corridor on the A414 between Hemel Hempstead and Harlow. This would enhance east-west connectivity, serve the planned development north of Harlow and alleviate congestion on the A414. This scheme builds on the initial concept of the Central Hertfordshire Passenger Transit System.

Status	Timescale	Indicative cost	Likely promoter / funder
Concept	Long term 2031-2050	Very high £100m+	Hertfordshire County Council, Hertfordshire LEP, District Councils

Policy fit

		M1/M25	A1(M)	A10/M11
Transport outputs delivered	Accessibility	✓	✓	✓
	Connectivity	✓	✓	✓
	Capacity	✓	✓	✓
	Quality	✓	✓	✓

Which objectives does this scheme support?

Objective reference	Objective 3a	Objective 3e	Objective 4b	Objective 4c
Objective description	To provide sufficient network capacity to support new development and related travel.	To improve access to employment opportunities.	To improve the resilience of the network.	To ensure that, as the population ages, older people in Hertfordshire are able to access key services.
Consistency of fit with remaining objectives	High level of consistency with SEP priorities to enable economic growth through more resilient and better quality connections.			
Scale of impact	Potentially high impact given cross corridor nature of scheme and accessibility and connectivity benefits that would arise.			

Indicative delivery risk assessment

Criteria	Assessment	Comment
Feasibility risk	Medium risk	Concept level scheme, subject to feasibility level investigations.
Planning risk	High risk	Appropriate corridor / route to be identified (dependent on whether the existing A414 infrastructure can be used for this scheme or whether a separate corridor adjacent to A414 is preferred). Likely that land acquisition is required.
Business case eligibility	Medium risk	Business case to be developed.
Funding - affordability	Medium risk	Cost to be confirmed following feasibility investigations.

Figure 1 Example of a scheme proforma

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4.3. In addition to this original list of schemes from the *Hertfordshire 2050 Transport Vision Stage 2: Technical Report*, AECOM were supplied with a list of 31 schemes identified by HCC stakeholders. The two lists combined formed 71 projects altogether, which was the starting point for this stage of work. An additional two projects were subsequently identified by HCC, bringing the total up to 73 projects.

4.4. AECOM's engineers and planners then investigated and devised an additional list of transport improvements based on their project experience and local knowledge. This additional list included 29 additional projects bringing the total list to 102 projects.

4.5. New proformas, matching the format used for the original long list (Figure 1), were then set up for all the additional projects. These are shown in **Appendix A**. It should be noted that this list of additional projects was matched against the new set of Transport Vision objectives supplied by HCC. These will be discussed further below.

4.6. All projects were combined into a final long list of potential transport improvement schemes for evaluation and potential inclusion in the final Hertfordshire 2050 Transport Vision.

4.7. The schemes were then scored against the Transport Vision objectives supplied by HCC, which are discussed in more detail in the following section.

5. Transport Vision Objectives and Scoring

5.1. The Transport Vision objectives are an update to the original objectives used in the *Hertfordshire 2050 Transport Vision Stage 2: Technical Report,* which were based upon the original Hertfordshire Local Enterprise Partnership Strategic Economic Plan (LEP SEP) objectives.

5.2. The new objectives were developed by HCC for sifting this long list of schemes and were informed by the Vision Stage 1 and 2 work and corporate plan. The objectives were based on the following principles as taken from the *STIB Paper: Transport Vision Objectives and LTP Development*:

- 'A set of objectives <u>distinct</u> from LTP3, given they have been developed from the updated Vision evidence base and current policy context, and cover a longer timescale.
- Objectives <u>relevant</u> to the local context and priorities.
- As <u>small a number of concise</u> objectives as possible, to aid engagement with stakeholders/the public by presenting a clear message. For clarification objectives should be presented alongside a summary of what they entail/ how they will be delivered.
- Objectives focussed on making <u>positive contributions</u> / enhancements to transport outcomes, rather than minimising negative impacts which are better addressed by policy and scheme impact assessments and not strategic objectives.
- In being <u>focussed on desirable outcomes</u>, the objectives try not to focus on the means to and end (i.e. behaviour change, mode shift, better travel information, reducing the need to travel) which will instead be presented as our approach to delivering the objectives.
- <u>Minimise overlap / duplication</u> of outcomes as much as possible.'[1]

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[1] *STIB Paper: Transport Vision Objectives and LTP Development*

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5.3. The objectives were then developed around three key themes: Prosperity, Places and People (Facilitating Prosperity, Contributing to vibrant and attractive Places, Supporting People). The objectives within these themes are shown in **Table 1**.

Table 1 Transport Vision Objectives

Objective	Expansion / what covered
Prosperity	
1) Improve access to international gateways and regional centres outside of Hertfordshire.	Connectivity to airports, ports, National Strategic Road and Rail network, London, Oxford, Cambridge and other regional centres. Road and rail journey times on these routes, rail service frequency and capacity.
2) Enhanced connectivity between the large and growing towns in Hertfordshire.	Better connecting (primarily by non-car modes given such towns are already connected by road, unless existing journey times or journey time reliability deemed unacceptable) our (current or future) larger towns. Agglomeration benefits. Greater access for employers to markets and supply chain activities.
3) Improve accessibility between employers and their labour markets.	Improve access to centres of employment by all modes where access by these modes is currently very difficult/unattractive. Travel planning and information provision to make people aware of travel options.
4) Enhance journey time reliability and network resilience across Hertfordshire.	Tackling congestion using methods which don't perpetuate the problem. Reducing the need to travel. Managing travel demand during peak periods. Effective responses to network events. Transport infrastructure resistant to disruption/unplanned events. Transport system & infrastructure resistant to the effects of climate change and extreme weather events.
Places	
5) Enhance the quality and vitality of our town centres	Positively improve environments in our town centres. Enhance quality of key public spaces in urban areas to make them more attractive places to live, work and invest, and enhance quality of life for all. Attractive urban realm and public spaces. Place function prioritised over movement function where appropriate. Prioritising modes with a lower impact on their local environment (walk, cycle, PT).
6) Preserve the character and quality of the Hertfordshire environment outside of its key urban centres.	Minimising impact on built and natural environment. Mitigate impact where this is unavoidable. Retaining Hertfordshire's sense of place and rural character.

Objective	Expansion / what covered
People	
7) Making journeys and their impact safer and healthier	Working with partners to reduce road collisions, and improve road safety. Encouraging active travel /greater physical activity. Working with partners to tackle air quality. [Lifecourse approach would be particularly useful here, recognising that different issues in relation to road and journey safety present themselves at different stages in an individual's life]. Encouraging sustainable mode use and providing sustainable travel options. Integrate existing and new travel modes. Ensure people feel secure using the transport network.
8) Improving access and enabling participation in everyday life through transport	Ensuring new development is adequately connected, and with sufficient capacity, to transport network (all modes). Link business parks and employment sites to the wider network. Encourage development to be located in the most accessible locations. Working with partners to support people to access key services. Encouraging and supporting places to meet access needs by low cost means (walk, cycle, internet). Supporting local and community solutions to access problems, and social isolation. Travel information. Ease of modal interchange/transition. Improved local access to transport hubs. Ensure that as the population ages, older people in Hertfordshire are able to access key services. Rural accessibility.

5.4. In order to evaluate the long list of projects, a scoring system was used against each of the objectives above. As the information and detail of the schemes varied, the scoring system of this long list of projects needed to be simple in order to reflect the limited scheme information available in most cases. Therefore a scoring range of 5 to 1 was adopted (5 = Very significant improvement / 4 = Significant improvement / 3 = Moderate improvement / 2 = Small improvement/ 1 = Very small improvement). No weighting has been applied at this stage, as it has been agreed with HCC officers that the objectives already reflect the priorities of the county and each of these should be given equal weighting.

5.5. In addition to the above criteria, HCC also developed four cross cutting themes which were of relevance to most/all of the objectives. The *STIB Paper: Transport Vision Objectives and LTP Development* explains their relevance to the objectives: 'The cross cutting themes either have a role in delivering the objectives and/or are themselves supported by the pursuit of the objectives. In reality the cross cutting themes should be at the forefront of how we as the local transport authority deliver our services.'[2] These themes are listed in **Table 2**.

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[2] *STIB Paper: Transport Vision Objectives and LTP Development*, HCC, 1 Dec 2015.

Table 2 Cross Cutting Themes for Transport Vision

Cross Cutting Themes
9. Reducing Carbon Emissions
10. Integration of Transport and Land Use Planning
11. Application and Adoption of New Technology
12. Cost effective/value for money delivery and maintenance of the transport network.
13. Encouraging active travel

5.6.   For each scheme, one point was given for each of the relevant crossing cutting themes above and added to the scoring already given against the Vision Objectives from **Table 1.**

5.7.   Finally, a high level risk assessment was undertaken on each scheme and contributed towards the scoring. Four risk categories were assessed, including:

- Feasibility Risk: Both the risk of engineering difficulty (difficult or new, unproven design and/or technique) and/or complexity of delivery (many modes, contractors, stakeholders);
- Planning Risk: The legal and planning approvals required, availability of match funding, stakeholder and public acceptability;
- Business Case Eligibility Risk: Both dependent on the quality of supporting evidence at this stage and expected value for money;
- Funding/Affordability Risk: Both dependent on the expected cost and funding period, e.g. higher cost projects that are planned in the longer term, have a relatively low risk as there is a longer period to develop the business case and source funding.

5.8.   The score given to each risk category above was then deducted from the total scheme score to reflect the level of risk involved with each scheme. The scoring levels used for each risk category were:
- 0 = Low Risk
- 3 = Medium Risk
- 5 = High Risk

5.9.   Following the process described above for giving a score to each category, a set of comments on the scoring of each scheme were included, to describe any assumptions made and explain any key benefits/dis-benefits that had a large influence on the scores.

6.   Evaluation of Schemes

6.1.   The scoring process described in the previous section was applied to the entire list of projects, including the original 39 projects from the Vision Stage 2 work and the 63 projects added to the list as part of this work (as shown in **Appendix A**).

6.2.   The scoring was undertaken by one team and checked by an independent team within the AECOM project team. The entire list of projects and their scores are shown in Table 3 below. Schemes highlighted in grey are committed schemes and have therefore been excluded from the scoring.

Table 3 Long list of schemes and their scores

ID	Scheme Name	Scheme Description	Scheme Score
1	Metropolitan Line Extension (MLX)	Extension of the London Underground Metropolitan Line from Croxley to Watford Junction via Watford High Street, with new stations at Cassiobridge and Watford Hospital.	-
2	A507 Buntingford-Baldock upgrade + A505 Link	Substantial upgrade of the A507 between Buntingford and Baldock, removing sharp bends and widening on some sections to improve capacity and safety. Potential to tie in with A10 upgrade south of Buntingford. Also potential to explore new link between A507 and A505 Wallington Road grade separated junction (to reduce impact of traffic on Baldock town centre roads).	12
3	Electric Assisted and Pedal Cycle Hire in Watford, Hemel Hempstead and St Albans	Concept level scheme to facilitate more cycle trips within and between Watford, Hemel Hempstead and St Albans. This scheme would involve the installation of docking points at key destinations within the three towns. Electric bikes could be provided as an option to encourage inter-urban trips to be made by bike.	16
4	Watford Junction Interchange Redevelopment	Redevelopment of Watford's mainline station to provide an improved transport interchange. The scheme includes improvements to the station forecourt and interchange, a new rear station interchange and entrance facility, a new multi-storey station car park and the extension of Colonial Way to improve road access to the M1.	12
5	Hemel Hempstead North-East Highway Capacity Improvements	This scheme would involve improvements to the highway network to the north-east of Hemel Hempstead in order to relieve congestion and support new development in the Maylands industrial area of Hemel Hempstead.	11
6	Improved East-West Inter-Urban Access (Non-Motorised)	Concept level scheme to improve non-motorised access between the urban areas in south and central Hertfordshire (including Hemel Hempstead, Watford, St Albans, Hatfield, Welwyn Garden City and Hertford). *Assumption that this includes walking, cycling, bus and rail to varying degrees (AECOM).*	21
7	Abbey Line (Watford to St Albans Abbey) Improvements	Proposed improvements to the Abbey Line (the Abbey Flyer) from Watford Junction to St Albans Abbey to increase the frequency of the service, e.g. passing loop.	11
8	Improved connectivity between St Albans Abbey and St Albans City rail stations	Concept level scheme to improve connectivity between St Albans Abbey rail station and St Albans City rail station, enabling faster and easier connections between the Midland Main Line at St Alban's and the West Coast Main Line at Watford, possibly through Light Rail Transit (LRT) or Bus Rapid Transit (BRT).	15
9	Crossrail 1 to Watford Junction and Tring	Branch route of Crossrail 1 from Old Oak Common in west London to Watford Junction, Hemel Hempstead, Berkhamsted and Tring, with a connection to the West Coast Main Line. *Assumption that this will connect to the mainline somewhere around Willesdon Junction and Harlesden and Crossrail services will then utilise the existing mainline in Hertfordshire as far north as Tring Station (AECOM).*	22

10	High Speed 2 Phase 1 – West Coast Main Line Opportunities	High Speed 2 (HS2) is a proposed high speed rail line between London and the West Midlands. The additional capacity provided by the line will release capacity on the West Coast Main Line, allowing more stopping services through Hertfordshire than operate at present. The opportunity is for all rail services on the West Coast Main Line to stop at Watford Junction and for increased frequencies of commuter trains at Berkhamsted and Hemel Hempstead, following delivery of Phase 1 of HS2.	14
11	Long Distance Rail Stopping Services at St Albans	Improved connections to key destinations such as Sheffield and Nottingham following completion of electrification of the Midland Main Line. This scheme would require lobbying for the reintroduction of stopping services at St Albans.	19
12	South West and Central Hertfordshire Passenger Transit System	East-West passenger transport system (proposed BRT) linking urban areas in central Hertfordshire, including Watford, Hemel Hempstead, St Albans and Hatfield.	19
13	High Speed 2 Phase 2 – Midland Main Line Opportunities	High Speed 2 (HS2) is a proposed high speed rail line from London to Birmingham and beyond, with Phase 2 proposed from the West Midlands to Leeds and Manchester. The additional capacity provided by Phase 2, if it goes ahead, will release capacity on the Midland Main Line, allowing more stopping services through Hertfordshire than operate at present. The opportunity is for additional stopping services at St Albans and increased frequency and capacity for services from Radlett and Elstree and Borehamwood.	11
14	M1 Widening	Concept level scheme to accommodate forecast levels of traffic on the M1 through Hertfordshire. Highways England forecasting to 2040 shows that the M1 through Hertfordshire will experience regular congestion.	14
15	A1(M) Congestion Relief	Upgrade of the existing two-lane section of the A1(M) around Stevenage to smart motorway (enabling hard-shoulder running) to provide a third lane of capacity in both directions.	-
16	Stevenage, Hitchin and Letchworth High Quality Bus Service	High quality, frequent and fast triangular bus service between Stevenage, Hitchin and Letchworth.	15
17	Stevenage Cycle Hire Scheme	Targeted cycle hire in Stevenage to facilitate journeys between key locations such as the train station and major employers.	13
18	Hertford Loop Metro	Development of a 'Hertford Loop Metro' on the Hertford Line from Moorgate to Hertford North through service improvements (capacity, frequency and speed) facilitated by a new Stevenage turnback platform and new stock. This scheme would support the development of Stevenage as a key transport / interchange hub.	21
19	High Speed 2 Phase 2 – East Coast Main Line Opportunities	High Speed 2 (HS2) is a proposed high speed rail line from London to Birmingham and beyond, with Phase 2 proposed from the West Midlands to Leeds and Manchester. The additional capacity provided by Phase 2 will release capacity on the East Coast Main Line, allowing more stopping services through Hertfordshire than operate at present. The opportunity is for additional long-distance stopping services at Stevenage and increased frequency and capacity for services from Welwyn Garden City and Hatfield.	15

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20	Abbey Line Conversion	Possible improvements could include converting the branch line into a light railway, guided busway, or enhancing infrastructure to enable the delivery of a better heavy rail service. The improvement option pursued should enable extension of the service at either end of the line.	17
21	East-West Rail Central Section – Luton-Stevenage-Stansted Option	Concept level scheme to link Luton, Stevenage and Stansted Airport by rail, connecting with the East-West rail scheme at Bedford.	22
22	A1(M) Widening	Concept level scheme to accommodate forecast levels of traffic on the A1(M) through Hertfordshire. Highways England forecasting to 2040 shows that the A1(M) will experience regular congestion.	14
23	A602 Improvements (Stevenage – Ware)	Capacity improvements to the A602 between Stevenage and Ware, including upgrades of junctions at Hertford Road, A119 and Anchor Road. The A602 is currently operating above capacity.	-
24	A120 Improvements (including Little Hadham Bypass)	A120 highway capacity improvements including the bypassing of Little Hadham to improve journey times between Bishop's Stortford and the A10.	9
25	Increased frequency of services in the Lea Valley on the West Anglia Main Line	Increased frequency of local West Anglia Main Line services on the Lea Valley line to Stratford, delivering four trains per hour in the peak instead of two trains per hour, through three-tracking sections of the line south of Hertfordshire towards Stratford.	17
26	M25 J25 Improvement	Upgrade of the M25 and the A10 junction at Cheshunt, providing greater capacity for traffic.	-
27	Four-tracking of the West Anglia Main Line	Four-tracking of the West Anglia Main Line between Coppermill Junction and Broxbourne to improve access to Stansted Airport through the Upper Lea Valley. Key sections of the track would be expanded to four-track (from two or three), allowing faster services to overtake stopping services. This would provide additional timetabled services to increase capacity and substantially reduce journey times from Bishop's Stortford and Hertford East to London. Delivery of Crossrail 2 to Hertfordshire requires four-tracking of the West Anglia Main Line.	17
28	New Junction 7A on the M11	New M11 junction to the north of Harlow to provide alternative access to the strategic network. Delivery of this scheme would support the planned residential development north of Harlow.	14
29	New East-West A-road between Luton, Stevenage and Stansted	Concept level scheme for a new A-road between Luton, Stevenage and Stansted, providing additional capacity for east-west movements in central / north Hertfordshire and facilitating access between growth areas.	18
30	Crossrail 2 to Broxbourne (TfL scheme)	New south-west to north-east rail line to provide suburban and regional services between Hertfordshire and parts of Surrey and Middlesex, via a new central tunnel between Tottenham and Wimbledon. This route option includes services to Broxbourne, via the existing West Anglia Main Line, as consulted on by TfL (Autumn 2015).	16

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31	Crossrail 2 extension options beyond Broxbourne	Building on the currently proposed Crossrail 2 route, these options look for Crossrail 2 to serve different parts of Hertfordshire. Options are currently being considered for inclusion in Hertfordshire's response to the current Crossrail 2 route consultation.	22
32	Comprehensive Electric Vehicle Charging Infrastructure	Scheme to provide an extensive, County-wide electric vehicle charging network through the installation of electric vehicle charging points and new and emerging charging infrastructure. Up to date charging infrastructure would be secured as part of new developments across the County and a central body would be tasked with addressing gaps and identifying opportunities for intensification of the network.	12
33	Use of Social Media and Emerging Technologies to Facilitate On-Street Parking	Concept level scheme to provide better information about on-street parking options within Hertfordshire's urban areas, reducing the time spent circulating looking for a space and total distance associated with circulation (reducing vehicle emissions and improving local air quality).	9
34	County-wide Workplace Parking Levy	Concept level scheme to introduce a workplace charging levy in Hertfordshire's largest urban areas, requiring workplaces that provide more than a threshold number of parking spaces for employees to pay a levy per additional space provided. Many employers pass the levy on to employees who drive to work, in return for a parking permit. This can encourage those who currently drive to work to identify an alternative way of travelling to work. A workplace parking levy scheme currently operates in Nottingham, and has been considered by Cambridge and Bristol as a possible measure to reduce peak hour congestion.	12
35	County-wide Integrated Ticketing System for Public Transport	Concept level scheme to support integrated ticketing systems across Hertfordshire, giving users better value fares, and allowing journeys to be made by public transport more easily.	11
36	Point to Point Electric Car Clubs in Watford, Hemel Hempstead, Stevenage and St Albans	Concept level scheme to support the introduction of electric car clubs in Hertfordshire's largest urban areas. These car clubs should be point to point (users not required to return the car to their journey origin) to encourage use of the vehicles for intra-urban trips and reduce the need for vehicle ownership within the most dense urban areas. The delivery of this scheme would have to be preceded by the delivery of the comprehensive electric vehicle charging network, otherwise the cost of installing a charging network would have to be considered in addition to initial feasibility and start-up costs.	12
37	Use of Uber and Similar Emerging Technologies for Demand Responsive Transport Services	Concept level scheme to improve the responsiveness and performance of existing demand responsive services (for example, taxis and private hire). This scheme could be applied to existing community transport schemes and therefore reduce the need for Council or District owned community transport fleet vehicles.	5

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38	High-Occupancy Lanes on A10, A414, M1 and A1(M)	Concept level scheme to reallocate one lane in either direction on strategic highway routes in Hertfordshire for vehicles with 2+ occupancy to encourage car-sharing and reduction in single-occupancy car journeys on the network. This scheme could be linked with schemes to provide additional capacity on the A414, M1 and A1(M) - any additional lanes provided would be for 2+ vehicles.	12
39	A414 Public Transport Expressway	Concept level scheme to provide an east-west public transport corridor on the A414 between Hemel Hempstead and Harlow. This would enhance east-west connectivity, serve the planned development north of Harlow and alleviate congestion on the A414. This scheme builds on the initial concept of the Central Hertfordshire Passenger Transit System.	20
40	Sustainable Infrastructure between Stevenage, Hitchin and Letchworth	Walking/cycling improvements between Stevenage, Hitchin and Letchworth.	15
41	Hertfordshire Park and ride schemes	Introduction of park and ride schemes throughout Hertfordshire at towns such as St Albans, would include introduction of supporting parking schemes and bus links.	13
42	Luton-Hitchin-Stevenage PT Option	Heavy rail scheme discussed among HCC officers.	26
43	Hertford Bypass	Highway bypass of Hertford town centre	12
44	ITS Demand Management	ITS to target demand management and improve travel information.	9
45	Relocation of Hemel Hamstead Train Station	Relocate train station to improve access.	12
46	Stevenage Station Redevelopment	As part of ongoing masterplanning work for Stevenage station, there is potential to improve the capacity of Stevenage Station through its redevelopment.	8
47	Stevenage Western Distributor Road	New road linking A602 - A505.	12
48	Broxbourne West Link Road	A new link road between the A1(M) potentially via Junction 2 south of Hatfield, and the A10 potentially via the Hoddesdon or Turnford grade separated junctions.	10
49	North of Harlow PT/Highways Link	New PT/Highways link to new development north of Harlow, including a second Stort crossing.	13
50	A120 continuation to Stevenage	Extension of A120 to Stevenage, including Standon bypass.	13
51	Local A10 Improvements South of Buntingford	Dualling and junction upgrades in southern section of the corridor.	11
52	Sustainable Travel Towns	Wave 1 of walking and cycling improvements in Stevenage, St Albans, Watford and Hemel town centres.	24
53	Standon Bypass	New bypass around Standon. Also see no.50 'Continuation of A120 to Stevenage'.	12
54	Hooks Cross Bypass	Deliverable scheme with links to development around Stevenage - required even with A602 longer-term strategy and role for route.	12
55	Royston Bypass	Link to Royston GTP with south Cambridge and possibility of emerging through analysis of future travel needs - local member has raised as a possibility.	12
56	Sawbridgeworth Bypass	Linked to growth around north Harlow/Gilston and with wider J7a/A414 improvements from any possible junction development with A1184.	12

57	A1M J3 and J4 Upgrade	Road upgrade building on work already undertaken.	9
58	A414 London Colney/A1081 Upgrade	Grade separated junction upgrade.	5
59	Active mode programmes	Programmes to encourage active modes in schools and workplaces	20
60	A414 Park St Roundabout	Grade separated junction upgrade.	5
61	A4147 Widening and Junction Improvements	IURS Scheme.	11
62	Colonial Way Link Road	IURS Scheme.	8
63	Hemel Western and Northern Bypasses	IURS Scheme.	12
64	Bus Priority Measures in Major Towns	Bus priority measures in Watford, St Albans, Hitchin, Letchworth and Stevenage. Could be based around corridor/cluster approach or to link with other elements where investemnt being made - likely focus on larger towns, but could also align with providing PT benefits at critical points to mitigate congestion.	12
65	Extend Luton & Dunstable Busway to Harpenden & St Albans	Extension of the busway from Luton Airport Parkway to Harpenden and St Albans through the provision of dedicated bus-roads and potentially guided busway sections.	21
66	West of St Albans Relief Road	A link road between the A414 near Potterscrouch Lane and the A4147 to the west of St Albans.	12
67	Bishops Stortford Southeast Bypass	Bypass to southeast of Bishops Stortford.	12
68	A120 (Bishops Stortford north) bypass dualling	Dualling bypass to north of Bishops Stortford.	9
69	Countywide express bus services	Scheme idea has been around for a while based on a service running between Watford and Stansted - currently HCC would not provide any funding, but if greater resources would probably look to suppport- this concept could be expanded to run along other corridors and would link with other proposals, i.e. priority and possibly hubs.	19
70	County wide network of PT hubs	Would probably focus on next 'tier' or two down from the larger towns, where the principle applies to some extent already - linking with station/other PT links where possible and need - possibile focus around busier stations to start with and can be linked with travel patterns - this is based on the capital side of providing the physical PT interchange rather than service support.	11
71	A602 long term strategy	Independent of other A602 schemes and also takes into account whether improvements to A602 or other e/w route, e.g. Luton, Stevenage, Stortford/Stansted. This is a longer term A602 capacity upgrade scheme, however if an alternative new east west link road from Stevenage to the A120 is progressed, the case for such a scheme would be less. However there may still be a need for the current A602 improvement scheme and the Hooks Cross bypass as these would be required whatever the future role for the A602. Hopefully this clarifies the interdependencies.	11

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72	M11 J8 Improvements	Strategic intervention at M11 J8 bypassing the A120 east-west movement away from the junction (based around the additional demand from growth around Harlow and increasing passenger numbers at Stansted) – this would be in addition to J7a development and J7 improvements.	7
73	A1(M) All Lane Running	All lane running on A1(M) beyond the already committed scheme between junctions 6 and 8.	10
74	Luton-Hemel Hempstead Public Transport system - light rail, heavy rail or rapid bus including connections to Luton Airport and Maylands	Travel patterns analysis has indicated a strong flow of journeys to work between Luton and Hemel Hempstead. Providing access to Maylands would also form a key objective of this scheme. The corridor is currently not well served by public transport and the M1 between J10 and J8 currently experiences severe congestion during peak periods.	24
75	Harpenden Western Bypass - A1081-A5183 Link	Harpenden experiences congestion during peak periods. Furthermore, the A1081 acts as an alternative route to the M1 when it experiences congestion and incidents (between J10 and J6). A bypass link would free up capacity within Harpenden, therefore offering the opportunity to invest in improved infrastructure for cyclists and pedestrians accessing Harpenden station.	12
76	Upgraded M1 Junction 8 + Maylands Access	The A414 Breakspear Way experiences significant congestion during peak periods. The Maylands Growth Corridor Study has identified the need for an improvement to both relieve congestion and provide additional capacity to enable growth in Maylands and east Hemel Hempstead.	5
77	Hertford East-Harlow direct rail connection (plus onward direct services to Stansted)	There are no direct rail services between Hertford and Harlow (this requires a change of train at Broxbourne). There is opportunity to attract mode shift from car on the A414 corridor. There is opportunity to provide direct services to Bishop's Stortford and Stansted Airport, providing improved access to job opportunities at the expanding airport.	22
78	Hertford East-Hertford North PT connection	Bus connection between the two stations.	17
79	Extension of London Underground to Elstree/Borehamwood and Potters Bar	Travel Patterns analysis has indicated movements between Herts and northern London Boroughs by car. Extension of London Underground to Hertsmere (as had originally planned, and partly built, by LUL but abandoned in the early to mid part of the last Century) provides opportunity for Herts residents to undertake short to medium distance trips by Underground rather than by car. Opportunity to provide improved bus, walk and cycle connections.	17
80	A505-A602 Hitchin Southern Bypass	A bypass to the south of Hitchin, linking the A505 to the south-west of Willow Lane and the A602 to the east of the town between Willow Lane and the B656 Park Way roundabout.	12
81	M1 J10-A5 Link	A link road between M1 Junction 10 and the A5 near Caddington. The scheme would be largely outside of Hertfordshire but could reduce traffic flows in Markyate.	6

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82	Upgrade of A411 Watford-Bushey-Elstree-Borehamwood-Barnet including Elstree southern bypass and Stirling Corner grade separation	The Stirling Corner roundabout currently experiences congestion, partly as a knock on effect of congestion downstream within Greater London.	11
83	A1 South of M25 upgrade including technology	Provision of information technology on northbound and southbound carriageway including gantry signs and variable speed limits combined with safety improvements.	9
84	M1-A1 link south of Borehamwood (from service area to Barnet Bypass - Scratchwood)	This scheme would implement a link between the London Gateway Service Area and the Barnet Way bypass. The existing grade separated junction is the missing M1 Junction 3. It could relieve pressure on roads in Hertfordshire, in particular the Elstree Crossroads and Stirling Corner.	9
85	M1 Junction 4 - A41 connections	Provision of more connections to enable full movements between the M1 and A41 which is currently restricted. Could relieve M1 Junction 5 and roads within Elstree and Borehamwood.	8
86	M1 upgraded Junction 6	The existing junction layout does not meet design standards and experiences congestion during peak periods. This scheme would increase capacity and separate local and strategic traffic leading to a more efficient network. The scheme would need to tie in with improvements being brought forward by Highways England.	7
87	M1 partial closure of J9 - relocation to the south of Redbourne + northern gateway access to Maylands and A5-M1 parallel links	This scheme would involve the creation of parallel links between the existing Junction 9 and the B487 south west of Redbourn. North-facing slip roads would be retained at Junction 9, however south-facing slips would be relocated to a new Junction 8a connected to the B487.	9
88	Bishop's Stortford - Stansted Airport cycle 'superhighway'	Provision of improved cycle (and pedestrian) links between Bishop's Stortford and Stansted Airport, currently not well linked other than by road. Links could be entirely separate from the existing road system, or via an upgraded M11 Junction 8 and other grade-separated links across key links and junctions	22
89	A414T and A405 cycle 'superhighway'	Provision of inter-urban cycle links between Hemel Hempstead, St Albans and Bricket Wood alongside the A414 and A405 corridors.	20
90	Abbey Line-Midland Main Line Link - diverting Abbey Flyer services to St Albans City	Provide a rail link between the Abbey Line and Midland Mainline in the Frogmore/Napsbury area, broadly along the alignment of an old freight line (long dismantled). Opportunity to provide greater connectivity and interchange opportunities for longer distance trips between the West Coast Mainline and Midland Mainline. Could be combined with a scheme to increase capacity on the Abbey Line to increase frequency, so some services could still be maintained to St Albans Abbey station.	14
91	M25 Rail Strategic Interchanges	Provide strategic rail interchange adjacent to the strategic road network to generate Park and Rail opportunities, e.g. at upgraded King's Langley station on WCML and new station at Colney St (MML).	11

92	Real Time Information	Real time information boards located where there are viable rail and road alternatives, e.g. A1(M), enabling people to make decisions about the fastest mode to take. Should also be supported by real time travel information available online.	7
93	Wayfinding Signage	Wayfinding signage in all Herts town centres to help people walking and cycling to find their way around. This should be uniformly branded throughout the county so that it is easily identified.	14
94	Uniform Hertfordshire Bus Branding	Uniform branding of Hertfordshire buses to make them easier to identify to new users and increase the community's level of comfort in using the system.	7
95	Driverless pods to connect major land uses	Use of emerging technology of driverless pods to connect rail stations to major land uses or sites of employment, e.g. connecting Hemel Hamsted rail station to the town centre and to the Maylands industrial area	14
96	Capacity upgrades at Junctions 21a and 23 on M25	Capacity upgrades at Junctions 23 and 21a on M25 to tackle current peak hour congestion (whilst these may not be in Hertfordshire, they feed into the county)	8
97	Freight Study	A study in the short term into freight movements and any improvements needed in the medium to long term	9
98	Countywide community rail partnership	Consider a county wide community rail partnership to develop community led ideas for rail station improvements, similar to the Abbey Line Community Rail Partnership	9
99	Express bus services	Bus priority or express bus service linking Hemel Hamstead train station to town centre and Maylands industrial area (short – medium term option to preclude no.95)	16
100	Stevenage eastern bypass	East-North bypass around Stevenage along Gresley Way alignment to connect Junction 8 to new development in north of Stevenage and the hospital	12
101	Commuter coaches	Commuter coaches to town or employment centres	18

6.3. The final scoring was discussed with HCC officers and a set of top ranking schemes from this list were selected as a short list to be assessed in more detail. A number of factors were considered in selecting projects for the shortlist including:

- Whether the scheme had already scored highly in the initial scoring method used above;
- Whether the scheme would require significant revenue funding;
- Whether there was overlap or possible integration with other schemes on the list;
- The strategic significance of the scheme to the entire county; and
- Giving preference to those schemes that were possible to bring forward by the County Council rather than those that require the lead from other bodies such as Highways England and Network Rail (the full LTP strategy will outline in greater detail HCC's aspirations for such projects and will inform their lobbying efforts).

6.4. Based on these considerations, some schemes were grouped as a package of options and/or amended where necessary to include a wider geographical area. The result is the following short list of schemes shown in **Table 4:**

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Table 4 Short Listed Options

Scheme ID	Scheme Name*	Scheme Description
39	Passenger Transit Expressway	Concept level scheme to provide an east-west public transport corridor on the A414 between Hemel Hemptead and Harlow and A405 between Watford and St Albans. This scheme builds on the initial concept of the Central Hertfordshire Passenger Transit System.
40	Quality Interurban Cycle Routes	Concept level scheme to improve non-motorised access between towns in urban clusters, to include links between Stevenage-Hitchin-Letchworth-Baldock, Hemel Hempstead, Watford, St Albans, Hatfield, Welwyn Garden City, Hertford. Provision of exemplary infrastructure above/beyond current provision.
57,58,60 43	A414 Junction Upgrade Package	A package of highway junction upgrade schemes on the A414 corridor, including A1(M) Junction 3 and Junction 4 upgrade; A414/A1081 London Colney roundabout upgrade; and A414/A405 Park Street roundabout upgrade. Other complementary highway capacity improvements could also be considered as part of this package. Potentially including other capacity upgrades as deemed required along this corridor, such as North of Harlow.
	Hertford Bypass	Highway bypass of Hertford town centre.
52	Sustainable Travel Towns	Concept level scheme to improve cycling, walking and public transport infrastructure within congested towns. Infrastructure intended to be above/beyond current provision, aimed at achieving a significant step-change in use of non-car modes. Towns would include Hemel Hempstead, Watford, Stevenage and St Albans.
74	M1 Passenger Transit Connection	Luton-Hemel Hempstead public transport link. Modes being considered are light rail, heavy rail or rapid bus (including sections on dedicated busway, guided or non-guided) including connections to Luton Airport and Maylands.
76	M1 Junction 8 and Maylands Access	The A414 Breakspear Way experiences significant congestion during peak periods. The Maylands Growth Corridor Study has identified the need for an improvement to both relieve congestion and provide additional capacity to enable growth in Maylands and east Hemel Hempstead. Consideration should be given to facilitating enhanced bus and cycle infrastructure through the junction as part of the upgrade.
21	East West Transit Route	Concept level scheme to link Luton, Stevenage and Stansted Airport by a new public transport corridor (could be heavy rail, rapid busway or light-rail).
29	East West Road	Concept level scheme for a new A-road between Luton, Stevenage and Stansted, providing additional capacity for east-west movements in central / north Hertfordshire and facilitating access between growth areas.

*Note: Some of the names in the table above were amended from their names in the long list where necessary to fit within the EAST template.

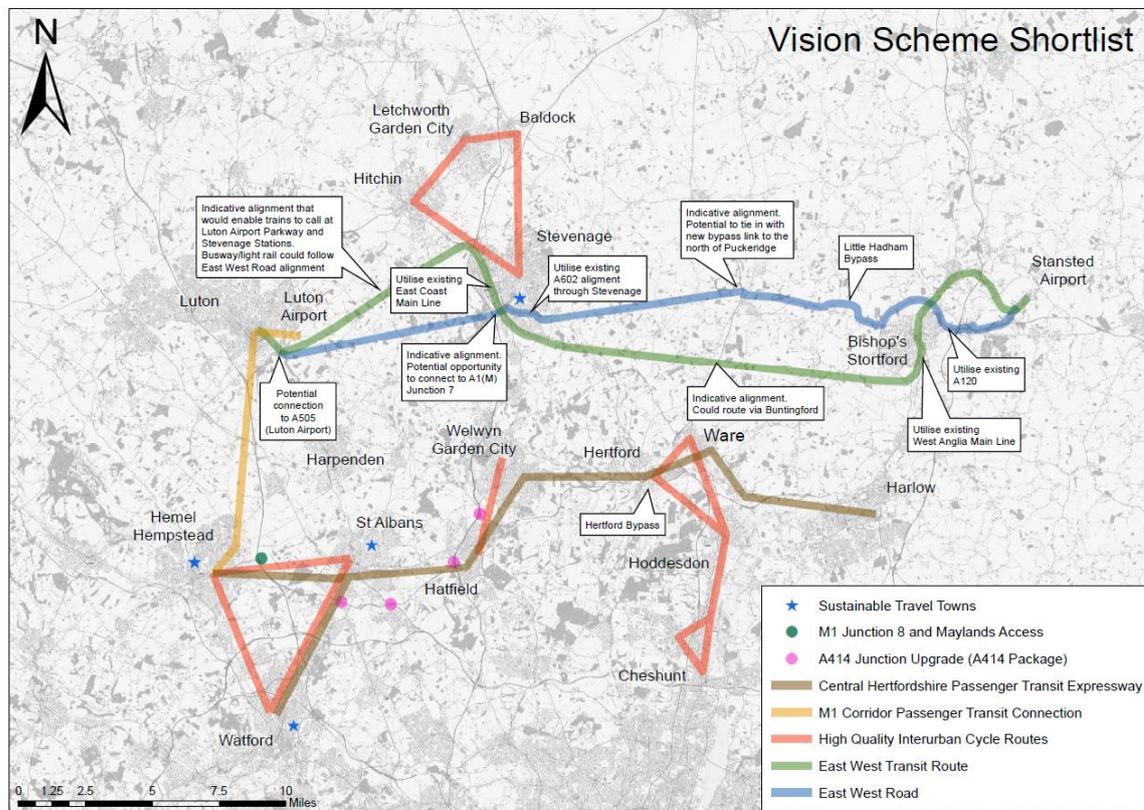6.5.   The scheme short list is shown in **Figure 2** below.

Figure 2 Short Listed Schemes

6.6. This short list of schemes was then assessed using DfT's Early Assessment Sifting Tool (EAST). The current DfT guidance available online for this tool is attached as **Appendix B**. This tool is designed to assess schemes in their early stages of conception, when there is limited evidence available to support the scheme. The assessment is based on the more detailed five case business case appraisal that is required for funding approval. For the current assessment, a description was given for each of the scoring categories to explain any limitations in data and assumptions made. This highlights what key information will be required for the next phase of planning the short list of projects. The EASTs for each scheme above are attached as **Appendix C**.

7. Next Steps

7.1. The steps described in this note have led to a short list of schemes that have been agreed by HCC. The intention is for these schemes to be further developed and appraised, including where possible, the consideration of outputs from the new COMET model to obtain quantitative evidence of their benefits. HCC will then consider which of the schemes on the shortlist should be included as the optimum package for inclusion in the draft LTP4 and taken forward for consultation in summer 2016.

7.2. In the meantime, the existing long list of options will remain as a resource for HCC to draw upon if additional projects are needed to replace any projects in the current shortlist that may not have a strong enough case once further design and analysis is undertaken.

Appendix A: Additional scheme proformas

Appendix C: EASTs for the Short List of Schemes