CHESHUNT AND WALTHAM CROSS
URBAN TRANSPORT PLAN

October 2010

Appendix Volume 1

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Urban Transport Plan for Cheshunt and Waltham Cross
Appendix Volume 1

Hertfordshire County Council, Broxbourne Borough Council
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Prepared by: ..... Approved by .....
Jonathan Brook
Consultant

Graham Fry
Associate Director

.....
Eri Kudo
Consultant

Urban Transport Plan for Cheshunt and Waltham Cross: Appendix Volume 1

Rev No	Comments	Date
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Beaufort House 94/96 Newhall Street, Birmingham, B3 1PB
Telephone: 0121 262 1900 Fax: 0121 262 1999 Website: http://www.fabermaunsell.com

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Glossary of Terms

AAP - Area Action Plan
BBC - Broxbourne Borough Council
BSF - Building Schools for the Future
CHN - Cheshunt Rail Station
DfT - Department for Transport
EEDA - East of England Development Agency
HCC - Hertfordshire County Council
HIIS - Hertfordshire Infrastructure & Investment Strategy
LAA - Local Area Agreements
LDF - Local Development Framework
LTP - Local Transport Plan
NXEA - National Express East Anglia
RES - Regional Economic Strategy
RSS - Regional Spatial Strategy
TEO - Theobalds Grove Rail Station
TP - Travel Plan
UTP - Urban Transport Plan
WAML - West Anglia Main Line
WLC - Waltham Cross Rail Station

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Introduction to Volume 1 of Appendices

1 Introduction to Volume 1 of Appendices

1.1 Introduction

Volume 1 of the Appendices contains detailed reviews of key transport themes that were undertaken during the preparation of the UTP through the format of discussion notes. These are based on discussion notes which were produced as an important element of the problem identification and option development and selection process and which were subject to consultation key stakeholders.

Discussion notes were prepared for each of the following five transport themes, reflecting the consultation process and issues in the area:

- walking and cycling
- bus
- rail
- smarter choices
- highways and parking

Each of the discussion notes took into consideration:

- the policy context;
- the existing situation;
- problems and opportunities; and
- options and solutions

This appendix contains updated versions of these discussion notes taking into account the iterative process through which strategies and measures have been developed for each of the transport themes and brought together to form the UTP.

A key part of this process was the preparation of a scheme assessment framework. This appendix therefore also includes as Section 7 a description of the scheme assessment framework used to investigate and establish the priority and programming of measures for inclusion in the UTP.

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Walking & Cycling

2 Walking & Cycling

2.1 Introduction

This section of the Appendix discusses the current and potential roles of walking and cycling in Cheshunt & Waltham Cross in the context of Hertfordshire County Council's relevant policy and strategy documents. Existing and committed proposals for walking and cycling facilities are reviewed and additional facilities which could form a part of the UTP are discussed, taking into account problems identified through investigation and public consultation.

2.2 Background to Walking and Cycling in Cheshunt and Waltham Cross

2.2.1 Overview of the Existing Walking Scene

According to the Cheshunt and Waltham Cross Urban Transport Plan Draft Data Report (2007), the walking modal share comprises approximately 2.3% and 3.1% of out-commuting trips to Cheshunt and Waltham Cross, respectively, while 3.5% and 4.5% of in-commuting trips to Cheshunt and Waltham Cross, respectively, were made on foot. Walking trips for those living and working in the town were 16.5% for Cheshunt and 26.8% for Waltham Cross. This reflects the relatively compact nature of the urban area and local employment opportunities, particularly within the Waltham Cross area.

The existing highway network is complemented by footways in almost all locations, with the key exception being along A121 Winston Churchill Way and Monarchs Way in Waltham Cross and along sections of the A10.

2.2.2 Overview of the Existing Cycling Scene

According to the Cheshunt and Waltham Cross Urban Transport Plan Draft Data Report (2007), the cycling modal share comprises approximately 2.25% and 3.13% of out-commuting trips from Cheshunt and Waltham Cross, respectively, and 1.2% and 2.0% of in-commuting trips to Cheshunt and Waltham Cross, respectively. Cycling trips for those living and working in the town were 1.5% for Cheshunt and 2.8% for Waltham Cross. From these figures, it is evident that cycling is a minority mode choice for commuting trips. Comparison of cycling and walking modal shares, especially considering local commuting trips, suggested that a lack of cycling facilities and limited promotion of cycling may be contributing to the low uptake of cycling in the area.

With regard to cycle trips to stations in the area, site observations suggest that the level of cycle usage to/from Cheshunt rail station is greater than at Waltham Cross.

Dedicated cycling facilities in Cheshunt and Waltham Cross are limited at present. The existing network of quiet residential roads provides a network which can be used by cyclists. Likewise paths in the Lee Valley Park provide opportunities for recreational cycling. However, the lack of dedicated cycling infrastructure potentially discourages higher levels of cycling, particularly new and would-be cyclists.

The existing highway cycle ways in the area are relatively disjointed and include sections on Eleanor Cross Road and Station Approach in Waltham Cross, and at the roundabout junction of Lieutenant Ellis Way and Goffs Lane. Cycling is also permitted in bus lanes on the B176.

2.3 Policy and Strategy Context for Walking and Cycling in Cheshunt and Waltham Cross

At the national and regional level, there is a strong policy requirement to reduce car use by promoting sustainable modes of transport particularly walking and cycling. An increased mode share for walking and cycling could both reduce levels of car use and have beneficial effects on levels of congestion and environmental outcomes. There are also important potential health benefits from increased levels of cycling and walking. Pedestrians and disabled people are at the top of the Department for Transport's Hierarchy of Users, followed by cyclists, and this needs to be reflected in the schemes being developed through the UTP.

2.3.1 Local Transport Plan

At a county-wide level, the policy framework for transport is the Local Transport Plan (LTP2). The LTP2 sets out the County Council's core transport vision of a "safe, efficient and affordable transport system that allows access for all to everyday facilities". The LTP2 targets an 11% increase in cycling through the county from 2397 trips per day (2004/05) to 2658 trips per day (2010/11). It also promotes the enhancement of pedestrian environments through supporting initiatives such as the English Heritage 'Save our Streets' campaign and targets 52% of footways across the County to be considered for maintenance.

2.3.2 Hertfordshire Cycling Strategy

The Hertfordshire Cycling Strategy is a daughter document to the LTP2 and builds upon the strategy set out in the County Council's 'Long Term Strategy'. The primary purpose of the Cycling Strategy is to encourage more people to cycle more often, and to involve and support other stakeholders in doing the same. The Cycling Strategy has two headline objectives:

- More people cycling more often as a convenient, quick, healthy and sustainable form of transport for short journeys
- More people cycling more often as an activity that contributes positively to the primary shared local transport objectives

The Cycling Strategy is supported by a guidance document on the creation of a cycle-friendly environment. This document informs not only planners, designers and engineers, but also stakeholders and developers of the principles to be applied with meeting the needs of cyclists.

2.3.3 Hertfordshire Rights of Way Improvement Plan

The Rights of Way Improvement Plan consists of an action plan to deliver what are perceived to be key improvements to the Rights of Way network. Rights of Way are accessed by a range of users other than pedestrians and cyclists and the action plan has consulted on a wide audience accordingly. Results of consultation raised the following issues with different user groups as shown in ***Table 2.1***:

Table 2.1 Rights of Way Issues

General	Pedestrians	Cyclists
Condition of and number of obstructions on the network Circular routes Better information about the network and how to access it	Network free of obstructions Short circular routes starting and finishing at key nodes Long routes, not necessarily circular, in more remote interesting places	Access to a greater proportion of the network to enjoy circular routes Surface enabling all weather access, not necessarily tarmac Routes free from gates and barriers

Although the Rights of Way network is often perceived to be mainly for recreational purposes successful integration into day-to-day travel routes is possible through careful design. This is reflected in the vision for Hertfordshire which is "to create, by 2026, an acceptable and integrated off-road route for non-motorised users based on rights of way and other routes, that meets the current and perceived future needs and demands of Hertfordshire's residents and visitors".

The Rights of Way Improvement Plan has 12 Core Actions. The following Core Actions are those which are most relevant to the expansion and integration of pedestrian and cyclist provisions in a wider context as shown in ***Table 2.2***:

Table 2.2 Rights of Way – Core Actions

Core Action	Pedestrians	Cyclists
Core Action 2: Develop the Rights of Way network from significant passenger transport connections	✓	✓
Core Action 3: Reduce the number of unnecessary physical barriers on the networks	✓	✓
Core Action 6: Create and develop off-road routes linking communities with places of work, schools and other local facilities	✓	✓
Core Action 7: Extend the network currently available to cyclists and horse riders		✓
Core Action 9: Ensure that opportunities to protect, extend and enhance the off-road network are included in proposals for new developments	✓	✓
Core Action 10: Where the off-road network is affected by busy transport routes work to ensure that appropriate measure are taken to improve	✓	✓

the safety and attractiveness of the routes for users		

2.4 Potential Role of Walking and Cycling in Cheshunt and Waltham Cross

Walking has the potential to meet the County Council's core transport vision of "a safe, efficient and affordable transport system that allows access for all to everyday facilities". Safety can be delivered through careful consideration of pedestrian needs, particularly interaction with traffic and perceptions of personal security. Walking can be efficient, particularly if infrastructure is designed to cater for direct routes to key destinations.

Cycling also has the ability to meet the County Council's core transport vision, perhaps even more so than walking because of its ability to cater for longer trip lengths and to offer consistent and acceptable journey times. Cycling is a door-to-door transport mode not subject to timetables and less impacted by congestion than either car or bus modes. Finally, it is affordable; in that the initial start up and maintenance costs are a fraction of that for a car, and in the long run can be cheaper than public transport.

Cycling has the potential to become a significant mode of travel in the area in that Cheshunt and Waltham Cross are relatively compact towns. The distance across the area is in the region of 5 miles (8 kilometres), which is regarded to be an acceptable maximum cycling distance for non-recreational trips. This means that many intra-town journeys can be made on cycle and even those out-commuting could potentially cycle to a bus or rail station and proceed with their journeys from there. Likewise, many trips are likely to be feasible by walk, particularly to schools and town centres, and for commuting up to a distance of 2km.

2.5 Review of Existing and Committed Proposals and Problem Identification

2.5.1 Overview of Existing Routes and Committed Proposals

With the exception of the River Lea Navigation canal towpath, existing cycling routes in Cheshunt and Waltham Cross have been developed in response to specific local circumstances rather than an overall strategy. Cyclists are also permitted within bus lanes and within the study area these exist on the B176 on Turner's Hill between Victoria Close and Crossbrook Street near Cheshunt town centre and on High Street between Trinity Lane and Fishpools Roundabout near Waltham Cross town centre.

Walking routes are more widespread in the form of footways adjacent to highways. Localised pedestrian cut-throughs also exist in residential areas and the wider Rights of Way network provides walking routes which particularly serve recreational purposes. Pedestrian footbridges are also available to cross the A10 and subways provide segregated pedestrian facilities for access to Waltham cross town centre (although in the case of the latter, concerns exist over personal security and signage).

Committed proposals mainly relate to the provision of cycle routes which are now coming forward through development proposals, with specific key destinations in mind. Although these proposals will address specific needs, they will produce a series of disjointed routes, rather than a comprehensive

network of routes. However, they provide an important foundation on which to develop a strategic network of cycle routes.

Responses from public and stakeholder consultation revealed that, in general there is a lack of purpose built cycle routes serving key destinations and a lack of cycle parking, including at key employment sites. There are also significant barriers to movement presented by the A10 and the railway lines which run through the area. From a walking aspect, subways were not considered to be attractive walking facilities, although there is evidence that they offer an acceptable option for cyclists.

2.5.2 Existing Routes

2.5.2.1 River Lea Navigation canal towpath

The River Lea Navigation canal towpath is an excellent recreational route which runs from London, through the Lee Valley Regional Park and on towards the north of the county, totalling 28 miles and linking into the National Cycle Network. It forms the spine of a large network of recreational routes which run through the Lee Valley Regional Park. Pedestrians have priority over cyclists, however considerate cycling is permitted.

Links and improvements to the River Lea Navigation canal towpath are planned as part of the Olympics access strategy. The Walking and Cycling Legacy Links funding requests to the ODA include proposals to upgrade the path.

2.5.2.2 Winston Churchill Way to M25J25

This shared use path (unsegregated footway/cycleway) provides a link to the print works and Park Plaza site and has been delivered as part of a S278 agreement for the print works site development.

At present, the shared use path terminates at the northern end at Theobalds Roundabout. From its current terminal point, there are plans for further links. To the north, the path will be extended as part of the St Mary's School relocation to connect to other facilities proposed for access to the new school site via a puffin crossing across A121 Winston Churchill Way. To the east, the existing path will extend and connect to Broxbourne Borough Council's long standing ambition for a shared use path on the southern side of A121 Winston Churchill Way.

The shared use path terminates at its southern end mid-way between the access road to the print works site and the M25 junction, where it joins the informal path towards the subway system under the M25 junction. The path is, at present, not wide enough to be used as a shared-use path, however it nevertheless attracts both cyclists and pedestrians. It is understood that subsequent development phases of the print works site have a condition attached to requiring an upgrade of the remainder of this link into a formal shared-use path and upgrading of the subway system. However, other conditions also require some redesign to the M25 roundabout, involving significant structural works and realignment of the A10. These requirements may delay development and it is therefore uncertain whether the remainder of the cycle link will be upgraded in the short term through developer funding.

TfL has previously undertaken a CRISP study along the cycle network to the south of the M25 junction which this route would like to when complete. As part of their study, the M25 junction was reviewed and the following options were put forward:

- Additional LCN+ signing on both Enfield and Hertfordshire side of the M25 roundabout
- Provide local destination signing
- S106/S278 to be pursued to request funding and/or land gain from cycle track and/or other facilities into and alongside newspaper development

2.5.3 Committed Proposals

2.5.3.1 A121 Winston Churchill Way shared use path

Route Objective: The proposed shared use path on the southern side of A121 Winston Churchill Way will link the Park Plaza area with Waltham Cross. The route is proposed to run between the A10/A121 roundabout and the A121/B176 roundabout. Proposals are being investigated by Camden Consultancy Services for Broxbourne Borough Council.

2.5.3.2 Cycle Links to the Olympics Site at Holdbrook

Route Objective: The A121 Eleanor Cross Road shared use path has been improved over the past few years and is being extended into Phase 3, which will run past the London 2012 Olympics venue towards the county border with Essex.

The route will provide access to the east from Waltham Cross Town Centre. Links to the underpass system at Monarch's Way roundabout enables movements to the rail station and the town centre. The underpass system appears to be appreciated by cyclists who find the underpass environment less intimidating than pedestrians do.

The completion of this route will provide a link from Waltham Cross to the proposed White Water Canoe Centre which will be hosting the London 2012 Olympic Games and which will also continue to attract visitors through the post-Games legacy. Delivery of Phase 3 has been programmed for a start in June/July 2009.

To provide a quality link from the northern entrance of the Olympic site, it is also planned to upgrade an existing pedestrian route in the Lee Valley Park to provide a high quality pedestrian and cycle link to Cheshunt station.

These links will help ensure that the White Water Canoe Centre has good access by sustainable modes, which is particularly important as the site has limited parking facilities and visitors will be encouraged to walk, cycle or use public transport.

2.5.3.3 Sustrans Connect 2 & Connect 2 links

Route Objective: The objective of the Sustrans Connect 2 project is to provide better links between the eastern and western side of Cheshunt and Waltham Cross and to serve the new St. Mary's School Site by providing a safe crossing facility (footbridge) over the A10 which presents a barrier to non-motorised users. The alignment of the footbridge is yet to be finalised.

The footbridge is the core of this Connect 2 project, with additional Connect 2 links being proposed to enhance the accessibility to the footbridge and bring benefit to a wider area. Although the Connect 2 links are yet to be finalised, it is envisaged that they will extend to Bury Green, Theobalds Park, Enfield (west of M25J25), Waltham Cross Town Centre, Cheshunt rail station and Lee Valley Regional Park. Completed improvements along Windmill Lane complement this strategy by increasing accessibility to both Cheshunt rail station and the

Tesco Head office on Delamare Road which is a major employer and not currently served by a formal cycle route.

2.5.3.4 Improvements to Theobalds Lane (east)
Part of the proposed Connect 2 links coincides with Broxbourne Borough Council's plans for enhanced walking and cycling facilities along Theobalds Lane. This proposal involves the extension of the footway between the A10 and Montayne Road, along with a new off-road cycle path adjacent to the footway.

2.5.3.5 Theobalds Lane to Winston Churchill Way
Route Objective: The footpath/cycleway link is being proposed from the south of the A10/A121 roundabout to the Sustrans Connect 2 footbridge over the A10 via a puffin crossing over Winston Churchill Way. This proposal is being brought forward as part of the works for the relocation of St Mary's School to improve accessibility from the Waltham Cross area. However, there is an added benefit in that it will improve accessibility to the Park Plaza site from a north-westerly direction (ie. the residential areas of Bury Green, Churchgate and beyond).

2.5.3.6 Park Lane level crossing improvements
Route Objective: The crossing facilities at the Park Lane level crossing will be improved into a footbridge as an alternative to the existing level crossing. This will provide a safer crossing facility, taking into account the intensified use as a result of increased movements between Waltham Cross Town Centre and the Park Plaza and adjacent developments. It is intended to be principally developer-funded through S106 contributions.

The crossing forms part of what is currently a bridleway and as such, there is an obligation to provide a facility that is also suitable for horses. However, there are technical difficulties in achieving this at Park Lane and alternative provision is subject to on-going investigation.

2.5.4 Network of Routes Created by Existing and Committed Proposals
The walking network is quite established alongside the highways in the form of footways.

The network of routes created by existing and committed proposals serves several key functions:

- linking Waltham Cross with major employment sites to the east of the A10 at the print works site and the Co-op site;
- linking the Olympics site with Waltham Cross town centre and Cheshunt rail station;
- linking Cheshunt rail station with the western side of the A10
- linking the relocated St Mary's School to Cheshunt and Waltham Cross on the eastern side of the A10;
- overcoming the barrier presented by the A10 in the southern part of Cheshunt;
- overcoming the barrier presented by the railway line to the west of Waltham Cross.

These committed cycling and walking schemes will significantly extend the existing walking network and the new cycling facilities will provide the basis for

the creation of an area-wide network of cycle routes to serve the whole study area.

For example, the two proposed shared use cycle/footways on Winston Churchill Way and Eleanor Cross Road (and the existing facility on Eleanor Cross Road) are relatively disjointed. By linking these two schemes by the addition of an additional cycle way along Monarch's Way, or by permitting cycling through the existing Waltham Cross Town Centre pedestrianised area, a continuous route along the A121 for cyclists will be created providing access to the A10 area, the town centre, Waltham Cross Station, the Holdbrook Olympic Site and to Waltham Abbey (via schemes being promoted by Essex County Council).

The proposed crossing facility over the railway line at Park Lane on its own presents an improvement to the existing situation. However, the benefit of the crossing could be further enhanced by improving the wider link to Waltham Cross Town Centre

2.6 Summary of Problems

Table 2.3 summarises the walking and cycling problems identified through consultation, desk top investigation and site surveys:

Table 2.3 List of Cycle and Walking Problems

Problem Reference	Problem Description
WCP1	Underpasses (particularly the Monarch's Way underpass) create movement barriers for pedestrians and cyclists and are unpleasant and unsafe (perceived problem)
WCP2	Poor east-west links for pedestrians and cyclists due to barrier created by railway lines and the A10
WCP3	Insufficient provision for pedestrians and cyclists to safely negotiate busy junctions and to cross busy roads
WCP4	Poor access to Lea Valley (lack of routes and safe crossing provisions across the railway line)
WCP5	Routes are lacking, in poor condition or at an inadequate standard to key destinations (discontinuous, narrow, dangerous and poorly signed)
WCP6	Conflict between pedestrians and cyclists, particularly in/around town centres
WCP7	Insufficient cycle parking provisions at key destinations
WCP8	Cycle ban in town centre
WCP9	Potential closure at rail crossings will create barriers to pedestrians and cyclists
WCP10	Relatively few people in the area walk or cycle either for regular journeys or for recreation
WCP11	Level crossing provisions are inadequate, especially for the disabled and mobility impaired

WCP12	Accessibility to rail stations is poor due to lack of crossing provisions
WCP13	Proximity to large vehicles makes walking and cycling unpleasant
WCP14	Lack of promotion/publicity to encourage cycling
WCP15	No footway on Winston Churchill Way

2.7 Urban Transport Plan Options

2.7.1 *General Design Concepts*

The choice of an individual to walk or cycle is based on a number of factors which range from psychological factors, weather conditions, financial incentives and infrastructure accessibility and quality. From an infrastructure delivery aspect, the success of a network is dependent on five core principles as outlined in Local Transport Note (LTN) 1/04 (Policy, Planning and Design for Walking and Cycling), published by DfT in 2004 They are:

- Convenient – directness of route; informative (maps, routes, signing, etc); appropriate priorities given;
- Accessible – linking key origins and destinations; provisions for crossing busy roads and overcoming other barriers to continuity;
- Safe – including infrastructure provisions as well as environmental (lighting, well maintained vegetation, etc); perhaps more a concern for pedestrians;
- Comfortable – meet standards for width, gradient, surface quality, etc; provision for a wider range of users;
- Attractive – aesthetics; noise reduction; integration with surrounding areas; cleanliness;

The Department for Transport has published a Hierarchy of Provision indicated in LTN1/04 for different users of the highway network (see ***Table 2.4***), which is reflected in Hertfordshire County Council's Cycling Strategy.

The Hertfordshire Cycling Strategy also gives guidance for particular site-specific circumstances where cyclists should be:

- integrated where the mean traffic speeds are 20mph or below;
- integrated if daily two-way traffic volumes are 2,000 per day, regardless of speed limit;
- integrated or partially segregated by cycle lanes in urban areas with 85th percentile speeds up to 40mph (depending on circumstance);
- fully segregated by a cycle track (or bus lane) where 85th percentile speeds exceed 40mph and traffic flows exceed 2,000 vehicles per day;

Table 2.4 DfT Hierarchy of Provision

Hierarchy	Pedestrians	Cyclists
Consider first	Traffic reduction: to reduce competition for road space	
	Speed reduction: to reduce speed differential between different modes	
	Reallocation of road space to pedestrians	Tackle problem sites: junction and hazard site treatment, traffic management
	Provision of direct at-grade crossings	Redistribution of carriageway: bus/cycle lanes, widened nearside lanes
	Improved pedestrian routes on existing desire lines	Segregation of traffic and cyclists: cycle lanes and tracks constructed to reallocation of carriageway space, cycle tracks away from roads
Consider last	New pedestrian alignment or grade separation	Conversion of footways/ footpaths to unsegregated shared-use cycle tracks long the carriageway

Pedestrian provision is provided as a matter of course in the form of footways adjacent to highways. However, the quality of provision can be greatly varied and there are opportunities to enhance the pedestrian environment in relatively minor ways such as paving materials, signing schemes, planting schemes and seating facilities. Careful design also requires that, where pedestrians and cyclists share an off-road facility, it should be wide enough to avoid any conflicts.

Cycle route provisions should be in line with Hertfordshire County Council's Cycling Strategy's Hierarchy of Provisions. It will also be necessary to consider additional physical measures which will make cycling more attractive (quality surfacing, appropriate priorities at junctions, secure parking facilities, cycle cut-throughs at no through-ways, etc.). The development of well signed cycle routes will also ease cyclists' journeys, in addition to acting as self-advertisement of the routes.

Cycling as a mode of travel and cycling facilities are supported through several national incentives such as the Cycle 2 Work scheme, and the Change 4 Life campaign which can also be extended and adopted as a starting point before more specific local measures are implemented.

In addition to physical infrastructure requirements, softer measures will also be necessary to further promote walking and cycling. These can include, but are not limited to measures listed in the following ***Table 2.5***:

Table 2.5 "Softer Measures" which Support Cycling

Measures targeted for Walking	Measures targeted for Cycling
advertising – On bill boards, at transport facilities and at event days. Routes can also be self advertising through prominent and high quality signing.	
provision of information – Schemes like the TravelSmart scheme in Watford to deliver information to people's doorsteps can help to get more people involved in walking	
travel planning – Travel planning can be an effective means of conveying walking opportunities and benefits to targeted groups of pedestrians (work place travel plans, school travel plans, etc). They are also a demonstration of commitment by organisations to install measures and facilities (such as cycle parking, changing rooms and showers) which make walking and cycling more attractive.	
walking groups – Walking groups can help to promote a sense of personal safety by making sure that pedestrians are not walking alone. This can be particularly effective in hours of darkness and on quiet, secluded routes.	cycling classes – Cycling classes can help to increase the confidence of born-again and would-be cyclists. Cycling classes are also particularly beneficial to children and can be offered in conjunction with school activities. The Bikeability programme teaches young people specific skills and badges can be earned for different levels of competency.
seating areas – Seating areas on main routes can provide valuable resting places en-route for those who are less able to walk long distances. They can also provide a location for community engagement where people can rest and converse.	cycle checks – Cycle checks can be offered at schools and leisure centres to give people greater confidence in the condition of their bikes. This could be complemented with a fix-it facility for any necessary maintenance works
open spaces – Open spaces can provide a recreational focal point for walking trips and provide opportunities for community activities, especially in town centre settings.	try before you buy schemes – Try before you buy schemes may help to encourage those who are uncertain about cycling and are therefore not willing to commit to the purchase of a bicycle. By having the option to try before purchasing, people may be more likely to give cycling a go.
CCTV and patrolling – The presence of CCTV and increased police/community support officer patrolling can deter crime and provide a more pleasant walking environment	accessible pump stations – Pump stations can be installed at leisure centres, community centres and schools similar to how pumps are provided for cars at petrol filling stations. This will make it easier for cyclists to maintain their bicycles and would be particularly useful if it is en-route

subsidised late night taxi services – Taxi services can be offered to vulnerable groups of people so that they can be encouraged to walk during the day without the worry of the return trip late at night.	insurance subsidies – Insurance subsidies can help give cyclists peace of mind, particularly if they are relatively inexperienced or their routes frequently encounter large volumes of traffic

2.7.2 *Objectives of Additional Urban Transport Plan (UTP) Proposals*

The key objectives for the UTP cycle strategy, taking into account the policy context, may be set out as follows:

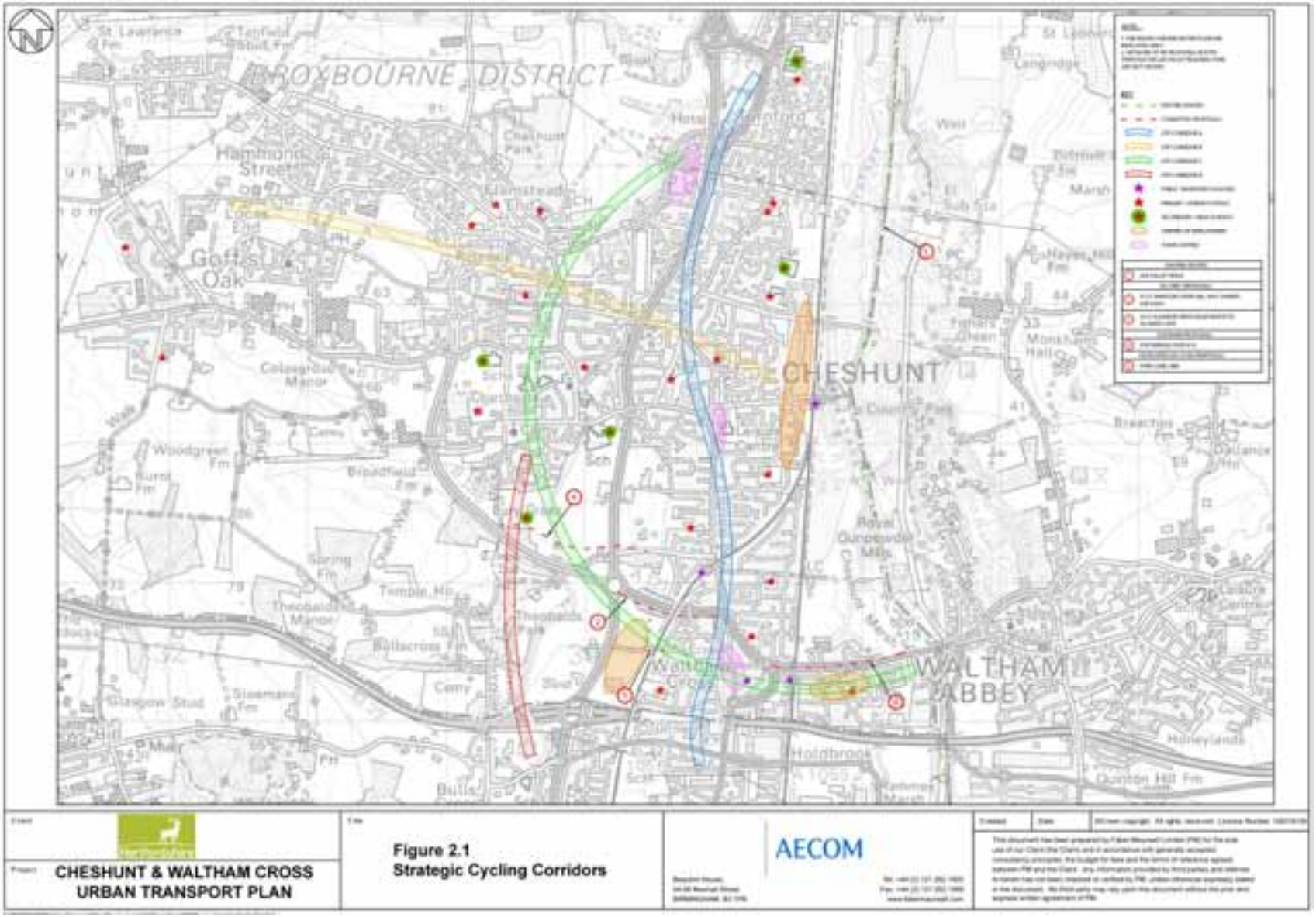
- to make best use of existing and committed proposals by creating links which will enable the development of continuous routes, including links to the London Cycle Network and Essex;
- to make locations of employment more accessible by walking and cycling from residential areas;
- to make locations of education (particularly secondary and higher educational institutions) more accessible by walking and cycling from residential areas;
- to make town centres more accessible by walking and cycling from residential areas;
- to make public transport facilities (principally rail stations) more accessible by walking and cycling from residential areas and locations of employment and education;
- to improve accessibility by walking and cycling to Cheshunt and Waltham Cross town centres and to Greater Brookfield;
- to promote walking and cycling through a range of targeted 'soft measures', in particular through travel plans, marketing and promotion.

It is envisaged that these objectives can be realised through increasing the permeability and directness of walking routes and enhancing cycling infrastructure in four main movement corridors:

- Corridor A: North-South corridor to the east of the A10 through Greater Brookfield, Cheshunt, Waltham Cross and London (Enfield)
- Corridor B: East-West corridor through Hammond Street, Goff's Oak, Rosedale and Cheshunt
- Corridor C: 'Loop' corridor to the west of the A10 through Greater Brookfield, Rosedale, Bury Green and Waltham Cross
- Corridor D: North-South corridor to the west of the A10 through Bury Green and London (Enfield)

These movement corridors are illustrated in ***Figure 2.1***.

Figure 2.1 Strategic Cycling Corridors



It is envisaged that targeted 'soft measures' would be used to complement infrastructure improvements.

Delivery of the corridors can be broadly categorised into:

- schemes to maximise benefits of existing routes; and
- developing a network of strategic routes

The following proposals have been considered for inclusion in the Cheshunt and Waltham Cross Urban Transport Plan. These are illustrated on the following ***Figure 2.2.***

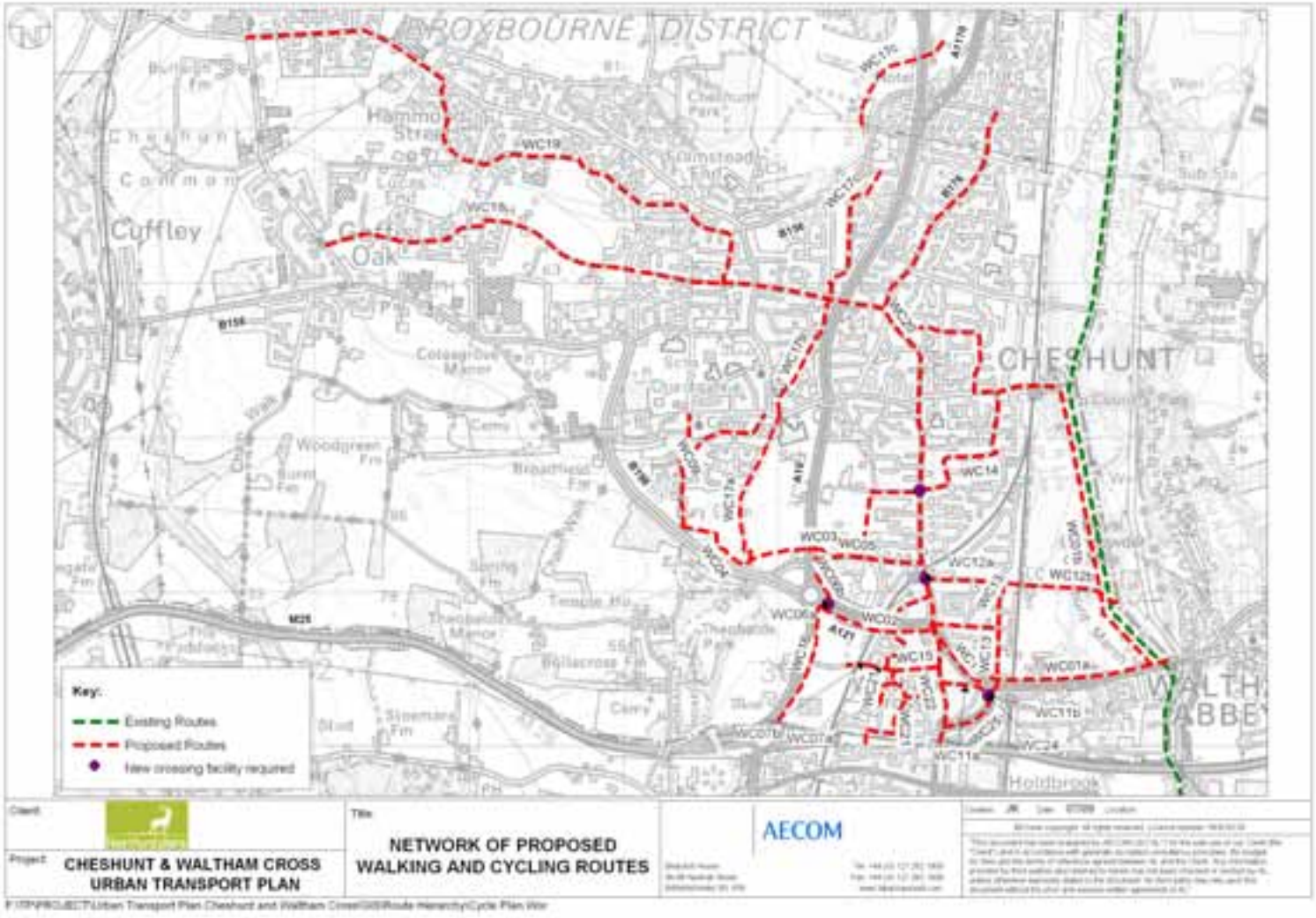
2.7.3 Schemes to Build on Planned Routes

2.7.3.1 Winston Churchill Way to Eleanor Cross Road (WC13)
This link could provide a continuous cycle provision from the eastern side of the A10 through to the county border, linking two existing proposals for shared use paths on Winston Churchill Way and Eleanor Cross Road and improving links between Waltham Cross bus station and rail station.

Several alternatives are possible for this link:

- Via A121 Monarch's Way: This option is the most direct route for those wishing to travel along the A121 however it is subject to heavy traffic volumes and cyclists may experience difficulties in negotiating the Monarch's Way Roundabout.
- Via Waltham Cross town centre: This option increases permeability into Waltham Cross Town Centre. The town centre is currently pedestrianised with a complete ban on cycling, and it is understood that there is a certain level of public opposition to allowing cycling through the pedestrian zone. It may, however, be possible to make cycling through the town centre more acceptable to the public by imposing time restrictions, for example, out of core pedestrian hours and not on market days. The cycle route would make use of the existing underpass system at Monarch's Way Roundabout removing potential conflicts with traffic. This option also has the added benefit of creating a link between the western residential area of Waltham Cross to Waltham Cross bus and rail stations.
- Via Swanfield Road and York Road: This option avoids the heavily trafficked A121 Monarchs Way and the pedestrianised town centre, however the residential roads are subject to heavy levels of on-street parking.

Figure 2.2 Proposed Cycling and Walking Schemes



Consideration of this link, is affected by the wider issues which currently exist at Monarch's Way Roundabout associated with the Monarch's Way Roundabout underpass system. This links the Waltham Cross bus station (and town centre), train station and the residential area to the north of Waltham Cross. However, site observations indicate that pedestrians often cross over the A1010 Abbey Road between the bus station and train station as opposed to using the underpass despite heavy guardrailing which has been installed as a deterrent. This could be attributable both to the detour and level changes associated with the underpass system, as well as the perceived personal security concerns. Cyclists, in contrast, appear to benefit from the option of using the underpass system.

A toucan crossing could provide an alternative to the underpass system across the Abbey Road Arm. This would be broadly in line with pedestrian desire lines and would facilitate better interchange between the bus station and rail station at all times of day.

The underpass environment could also be improved through some simple measures such as cutting back overgrown vegetation and through redesign of the landscaped area with more lively low growing plants. The ambience can also be improved by replacing the current brown tiling with a livelier colour scheme or through public art. Other measures, such as improving lighting and CCTV (recently installed) can also be achieved at moderate cost to improve the perception of personal security. Some of these measures could also be considered for the Rosedale underpass system to the north of Waltham Cross Town Centre.

Signing of the route between the bus station and the rail station through the Monarch's way underpass is to a relatively poor standard. Pedestrian and cyclist signs are inconspicuous and incomplete. When exiting from the underpass system travelling from the bus station to the rail station, there are no signs continuing to the rail station building, which itself is not very apparent.

Access from the Monarch's Way underpass to the bus station could also be improved through the provision of a crossing facility on Eleanor Cross Road which could be in the form of a simple pedestrian refuge close to the entrance to the sub-way system.

These proposals could be brought forward as part of Corridor C and would contribute towards Objectives 1, 2 and 4 above.

2.7.3.2 Theobalds Grove to Lea Valley Park (WC12b)

This route will provide access between Theobalds Grove rail station and the Lea Valley Park, passing by several schools on the route. A toucan crossing across High Street outside the rail station will ensure a safe means of crossing on this route which is proposed to be used by school children.

2.7.3.3 Waltham Cross to Lea Valley Park (WC13)

The route will provide access between Waltham Cross town centre, bus station and rail station and the Lea Valley Park at Cheshunt rail station. The route will again be used by school children as there are several schools on route. As part of this route a contra-flow cycle lane will be considered on York Road (which is a one-way street) or southbound cyclists will be signposted down Queens Road if not feasible.

2.7.3.4 High Street to Abbey Road (WC22)
This route will be a southern extension to the proposed alternative route through Waltham Cross Town Centre. A link continuing to Enfield was initially investigated. However, consultation with Sustrans, who are currently developing a North Central Greenways network, indicate that a continuous link along the A1010 in Enfield would not be suitable as part of the Greenways project which aims to link cyclists to 'green' off-road routes. The A1010 in Enfield does not provide a pleasant cycling environment and therefore other options to link to Enfield were investigated and are discussed in following paragraphs.

2.7.3.5 Park Lane Link (WC15)
A Park Lane Link will expand upon the improved crossing facilities at the Park Lane level crossing to improve accessibility between Waltham Cross town centre and the print works and Co-op employment site off the A10. There are some technical difficulties in achieving a bridleway crossing at this location, which is also required, so alternative provision may need to be sought

This proposal could be brought forward as part of Corridor C and contributes towards Objectives 1, 2, 4 and 5 above. This route also has strong potential to be promoted through and linked with company Travel Plans.

2.7.3.6 St Mary's School to Bury Green (WC09)
This route will be delivered as part of the St Mary's School development to provide appropriate means of access by sustainable modes. Bury Green Road is at present known to suffer from speeding and traffic calming is proposed to enhance the safety of pupils cycling to the school.

2.7.3.7 Link to Enfield from Waltham Cross Town Centre via Enfield Greenways (WC21)
This route would create a link between Waltham Cross town centre and the cycle network in Enfield, thereby improving access to central London. Sustrans are currently developing a Greenways scheme in Enfield, which include a proposal for a route from the northeast of Enfield and across the green-space over the Holmesdale Tunnel (M25). This route will link directly into the Greenways scheme currently under development.

This proposal could be brought forward as part of Corridor A and contributes towards Objectives 1, 4 and 5 above.

2.7.3.8 Extension to Winston Churchill Way to M25J25 (WC16)
Although there is already a proposal to complete the shared use path parallel to the A10 between Winston Churchill Way and the M25J25 junction, it is unlikely to be realised in the short term. It may therefore be beneficial to upgrade this path through the UTP to deliver the benefits of a quality link to Enfield. Cyclists can then travel into London via the underpass system at the M25 junction which runs alongside the eastern side of the motorway junction.

2.7.3.9 Abbey Road Footway (WC25)
This is a scheme which is being proposed by Broxbourne Borough Council. The footway will provide a link for pedestrians from Waltham Cross Town Centre and the rail station to the High Street Roundabout.

2.7.3.10 Traffic and Environmental Sites
HCC produces a list of traffic and environmental sites which identifies areas where speeding traffic, parking and road safety are key issues. The present list

includes the following walking and cycling schemes which coincide with the UTP area and which will be candidates for inclusion in the UTP:

- Hammondstreet pedestrian crossing (WC28)
- Milne Close Roundabout pedestrian improvements (WC29)
- Brookfield Lane West toucan crossing (WC30)

2.7.4 *Developing a Strategic Network*

The following cycling and walking measures are proposed as part of the development of a strategic network of cycling and walking routes across the area to be delivered through the UTP.

2.7.4.1 New River Off-Road Route (WC17a, b & c)

Route Objective: The New River Off-Road Route will provide a north-south route through Cheshunt from Greater Brookfield to the M25, with potential to connect to neighbouring boroughs. This route will serve as an alternative to the heavily trafficked A10. It also has the potential to be a continuous off-road cycle route providing improved cycle access from residential areas to Greater Brookfield in the north and St. Mary's School, Waltham Cross and rail stations at Theobalds Grove and Waltham Cross.

In order to provide continuity for pedestrian and cyclists, it will be necessary to consider arrangements for crossing College Road, Church Lane and Brookfield Lane West. Toucan crossings across the respective highways would be required accessed via ramps from the New River pathway.

The New River is a Thames Water asset and at present there are informal permissive paths along the river in several disjointed sections. In the longer term, a quality off-road route could be provided along the New River by upgrading existing sections to a suitable standard, link these sections by the creation of new paths and to adopt the entire corridor as a right of way. Further discussions are required to establish the deliverability of the scheme.

As well as providing a route for school and work trips, a cycle route alongside the New River would provide an important resource for recreational use and a facility that could encouraging more people to experience cycling.

As an extensive route, it is envisaged that its delivery will need to be phased. This will require further consideration but could involve the following approach:

- Phase 1 – Theobalds Lane to College Road: This first phase would provide an alternative route between the existing St Mary's School and the relocation site. To the south, the route would make use of the existing route under B198 Lieutenant Ellis Way and link to the Sustrans Connect 2 link project via Theobalds Lane, which in turn creates a link to Enfield.
- Phase 2 – College Road to Church Lane: This second phase would continue northbound from Phase 1 to run along the existing residential area of Churchgate and the proposed Cheshunt South Reservoir development which is likely to be in excess of 200 residential units.
- Phase 3 – Church Lane to Brookfield Centre: This final phase would continue northbound from Phase 2 and run along the western side of Greater Brookfield. It is envisaged that at around the time this Phase is delivered, Greater Brookfield will be developed in accordance with the Council's long term plans for a mixed-use town centre. The New River

Route would then help to encourage sustainable travel to and from the new centre.

Funding for a substantial part of Phase 2 could be gained from the Cheshunt Reservoir residential development. The path currently runs as a Right of Way along the eastern side of the ex-reservoir. Current plans indicate that the proposals do not accommodate for re-routing of the path. However, as an existing Right of Way, the path would need to be retained or re-routed to a more suitable alignment. The most direct route along the New River would be along the western side of the reservoir plot and the Council could pursue developer funding for the diversion and upgrading of the route to a high quality.

The alignment on the southern end of the route has been shown to divert away from the New River and join on to Theobalds Lane and Bury Green Road. While it may be desirable for the route to continue along the New River into Enfield, this would require running the route alongside the aqueduct over the M25. It is therefore considered to be more feasible to link into the cycle network in Enfield by making use of the existing Bulls Cross Lane Bridge over the M25.

By promoting the use of the New River Off-Road Route, particularly as a school route, appropriate measures would need to be in place to ensure the safety of both pedestrians and cyclists. This could include physical measures such as selective provision of fencing and security measures such as lighting and CCTV. The case for these measures may best be considered in consultation with users and other interested parties as part of a scheme evaluation process.

This proposal will support Corridor C and contributes towards Objectives 1, 3, 4 and 6 above. There is also a strong potential for this route to be incorporated into development proposals and Travel Plans associated with residential development in the corridor.

2.7.4.2 Goff's Oak to Cheshunt Train Station (WC18)

Route Objective: The Goff's Oak to Cheshunt Rail Station route is proposed as a main east-west route, linking the residential areas of Goff's Oak and Rosedale with Cheshunt town centre, employment areas (including Tesco head office on Delamare Road), schools and Cheshunt Station.

Although this corridor may already be used by more confident cyclists, reallocation of road space to cycles and provision of shared use paths, where practical, together with signing and promotion could significantly increase the attractiveness of cycling in this key corridor.

The route will run through the residential areas of Goff's Oak and Rosedale, passing near several schools before ending at Cheshunt rail station. At the eastern end, the route will tie in to the existing network of recreational routes in the Lee Valley Regional Park. At the western end, the route has the potential to extend outside the study boundary towards Cuffley.

Andrew's Lane is not open to vehicle traffic on the eastern side of Rosedale Way. The existing highway layout is such that traffic needs to travel around the residential area, and join back on to Andrew's Lane at the Andrew's Lane/Rosedale Way roundabout. A more direct route can be achieved for pedestrians and cyclists if a 'cut-through' could be provided to enable a link to the two sides of Andrew's Lane on either side of Rosedale Way for cyclists and pedestrians.

There are already advance cycle stoplines on Chuch Lane crossing the A10.

This proposal could be brought forward as part of Corridor B and contributes towards Objectives 2, 4 and 5 above. There is also a strong potential for this route to be incorporated into Travel Plans.

2.7.4.3 Hammondstreet to Rosedale – linking to Cheshunt rail station (WC19)
Route Objective: This route is proposed to improve accessibility from the residential areas of Hammondstreet and Flamstead End to Cheshunt train station route by linking into the proposed Goff's Oak to Cheshunt Train Station route.

The proposed alignment which runs along the southern periphery of the area is seen to be preferable to the route which runs more centrally due to its quieter nature and the greater potential to provide greater carriageway widths as required. The street layout through Hammondstreet provides ample opportunities for those residing in the surrounding area to link onto the proposed route.

This proposal could be brought forward as part of Corridor B and contributes towards Objectives 2, 4 and 5 above. There is also a strong potential for this route to be promoted in and linked to Travel Plans.

2.7.4.4 Turnford to Waltham Cross (WC20)
Route Objective: The Turnford to Waltham Cross route is proposed as a main north-south route following the alignment of the B176 which acts as a spine road through the older parts of Cheshunt. It will link residential areas in the corridor with employment areas town centres and schools.

The highways in this corridor are already used by more confident cyclists, but reallocation of road space to cycles and provision of shared use paths, where practical, together with signing and promotion could significantly increase the attractiveness of cycling in this key corridor. Short lengths of cycle facilities currently exist as bus lanes along Turner's Hill (near The Pond) in Cheshunt and along High Street to the north of Waltham Cross.

This proposal could be brought forward as part of Corridor A and contributes towards Objectives 1, 2, 4, 5 and 6 above. There is also a strong potential for this route to be incorporated into Travel Plans.

2.8 Delivery

Delivery of UTP schemes is categorised into short term (0-2 years), medium term (3-5 years) and long term (greater than 5 years).

2.8.1 Assessment of delivery years

The determination of whether a proposed UTP scheme is suitable for short, medium or long term delivery has been considered through an assessment framework using a range of criteria (see Section 7 of this Appendix). assessment criteria. Although schemes have been ranked in terms of anticipated outcomes and contribution to key LTP targets, programming is heavily dependent on feasibility. This relates to:

- scheme cost/affordability;
- availability of funding;
- contribution to a package of schemes;

- linkage with development
- agreement between delivery partners (where more than one agency is responsible for funding).

Schemes with lower risk factors were deemed as being feasible for short term delivery, whilst those with higher risk factors were identified for medium and long term delivery. Nevertheless, where possible, priority would be given to those schemes that produce the greatest benefits in relation to cost.

2.8.2 *Funding opportunities*

A number of funding opportunities are available for walking and cycling schemes. The main source of funding will be that allocated to the LTP2, especially where the ability of UTP measures to meet the LTP indicators is high.

Sustrans could also be a major funding source. Where schemes fit a certain category of Sustrans initiatives, HCC/BBC would be able to apply for funding for specific schemes. This has already been demonstrated through provision of funding for the A10 footbridge under the Connect 2 scheme. Links to Schools, an initiative by Sustrans to create links from existing cycle networks to schools, could also be a possible source of future funding. At present, there is a very limited cycle network in Cheshunt and Waltham Cross so it is unlikely that schools in the area would be eligible for the scheme. However, in the longer term, as the routes mentioned above become established, many schools in the area could benefit from the initiative. Links to Schools is currently in its fourth year of operation.

Another significant source of funding for cycling and walking measures will be developer contributions through Section 106 Agreements. Where housing or employment developments are proposed, they will generate trip movements and it will be necessary to ensure that wherever possible these can be undertaken by sustainable modes such as walking and cycling. Therefore such developments may justifiably contribute to the provision of cycling and walking facilities at the development site and in the wider area where they will facilitate access to and from the site.

2.8.3 *Delivery programme*

Having investigated the feasibility and funding opportunities, ***Table 2.6*** presents the list of walking and cycling UTP measures categorised into delivery periods:

Table 2.6 Cycling and Walking Schemes for the Short, Medium and Longer Term Delivery

Scheme Reference	Scheme Description
Proposed Short Term Schemes	
WC01a	A121 Eleanor Cross Road Cycleway Final Phase (Linked to Olympic Site)
WC01b	A121 Eleanor Cross Road - Link to Cheshunt Station via Towpath (Linked to Olympic Site)
WC02	Footway/Cycleway on south side of Winston Churchill Way
WC03	A10 Theobalds Lane Cycle/Footbridge
WC04	A10 Cycle/Footbridge Link to St Mary's School

WC05	Theobalds Lane (east) improvements - cycleway and traffic calming measures - A10 to High Street
WC06a	Toucan Crossing of Winston Churchill Way at A10 roundabout
WC06b	Winston Churchill Way to A10 Footbridge and Theobalds Lane
WC07a	Park Lane Cycle/Footway rail crossing
WC07b	Park Lane Bridleway crossing
WC08	Hurst Drive Primary School Initiative
WC09	Cycle Route –St Mary's School to Bury Green
WC10	Signing of cycle Route Winston Churchill Way to Eleanor Cross Road
WC11a	Signing improvements between Waltham Cross bus station and rail station
WC11b	Provision of toucan crossing across Monarchs Way
WC12a	Theobalds Lane/High Street Toucan Crossing
WC12b	Signing of Cycle Route - Theobalds Grove to Lee Valley Park
WC13	Signing of Cycle Route - Waltham Cross to Lea Valley Park
WC14	Cycle Route - Theobalds Grove to Cheshunt Station
WC22	Signing of cycleway Waltham Cross Town Centre to Abbey Road Roundabout
WC23	Provision of additional CCTV at Monarchs Way Subway
WC24	Enhancements to Monarchs Way Subway - Landscaping/Lighting & Walkways
WC25	Monarchs Way (Abbey Road) footway
WC26	Publish a walking/cycling leaflet and information on HCC and BBC web sites
WC28	Hammondstreet pedestrian crossing
WC29	Milne Close Roundabout pedestrian improvements
Proposed Medium Term Schemes	
WC15	Signing of Park Lane to Waltham Cross Town Centre
WC17a	New River Cycle/Footway Phase 1 - Theobalds Lane to College Road
WC17b	New River Cycle/Footway Phase 2 - College Road to Church Lane
WC18	Signing of Cycle routes - Goff's Oak to Cheshunt Station east-west route
WC19	Signing of Cycle route - Hammondstreet to Rosedale linking with Goff's Oak to Cheshunt rail station route
WC20	Cycle enhancements in B176 corridor
WC21	Signing of Cycleway Link to Enfield from Waltham Cross via Enfield Greenways
WC30	Brookfield Lane West toucan crossing
Long term schemes	
WC16	Completion of Winston Churchill Way to M25
WC17c	New River Cycle/Footway Phase 3 - Church Lane to Brookfield Centre

AECOM

Bus Network and Services

3 Bus Network and Services

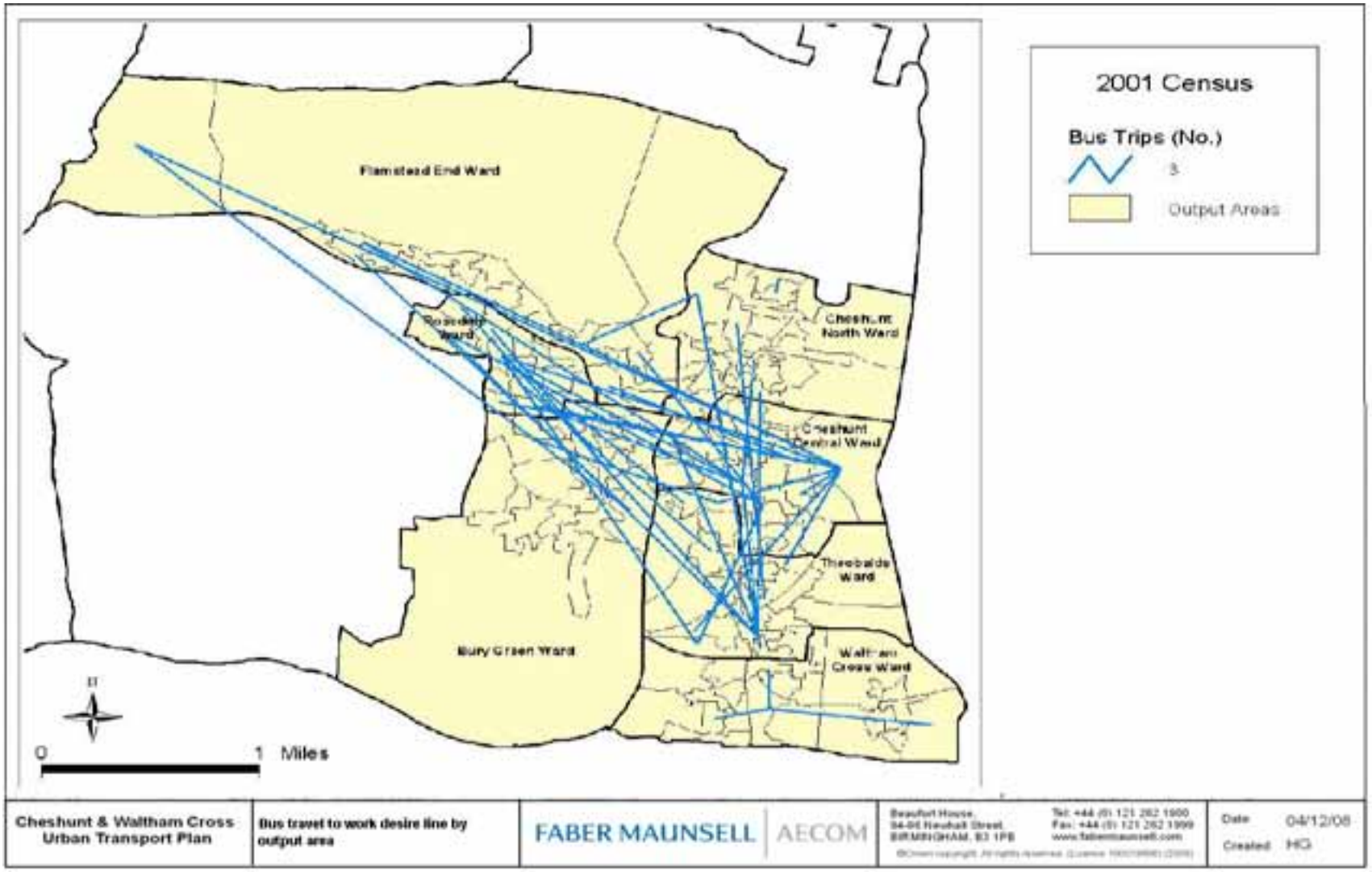
3.1 Introduction

This section of the appendix relates to the existing position of bus transport and future options for bus services and infrastructure within the study area. It includes information gathered from a site visit, policy review, a stakeholder meeting, contact with HCC's Passenger Transport officer and bus operators (TfL, Arriva and Metroline) and wider research.

3.2 Background to Bus Travel and Facilities in Cheshunt and Waltham Cross

According to the Cheshunt and Waltham Cross Urban Transport Plan Draft Data Report (2007), the bus modal share comprises approximately 3.14% and 10.75% of out-commuting trips from Cheshunt and Waltham Cross, respectively, while 4.24% and 10.99% of in-commuting trips to Cheshunt and Waltham Cross, respectively, were made by bus. Bus trips for those living and working in the town were 1.50% for Cheshunt and 1.52% for Waltham Cross. Bus journey to work desire lines within the study area are shown on ***Figure 3.1*** below.

Figure 3.1 Bus Journey to work Desire Lines



As can be seen from the above figures, bus travel into and out of Waltham Cross is more prominent than into and out of Cheshunt. This may reflect the current cross-border arrangements where travel to London requires an interchange at Waltham Cross bus station, together with the generally lower level of bus fares in the London area. Use of buses for travel to work by people living and working in the area is very low.

Within Cheshunt and Waltham Cross, there is one section of bus lane which runs along B176 linking Cheshunt and Waltham Cross town centres. Bus services run along the main residential corridors, although at varying frequencies.

The bus network and bus frequencies are shown in ***Figure 3.2***. Most residents in Cheshunt are able to access the town centre by bus within 15 minutes. Residents living further away in Hammond Street are within a 30 minute travel time of the town centre.

For Waltham Cross, most residents are within 15 minutes of the town centre, with the exception of the southeast corner in Holdbrook which is within 30 minutes of the town centre.

The Brookfield Centre is served by low frequency bus services.

Figure 3.2 Bus Routes and Frequency of Bus Services

3.3 Policy and Strategy Context for Bus Travel in Cheshunt and Waltham Cross

The County Council's transport vision in the Local Transport Plan is "to provide a safe, efficient and affordable transport system that allows access for all to everyday facilities. Everyone will have the opportunity and information to choose the most appropriate form of transport and time of transport. By making best use of the existing network we will work towards a transport system that

balances economic prosperity with personal health and environmental well being."

3.3.1 *Hertfordshire Bus Strategy*

The Hertfordshire Bus Strategy is a daughter document to the LTP2. Its objectives contribute to the overall LTP shared priorities of safety, congestion management, accessibility and quality of life by:

- Providing an effective and efficient network of bus services as a travel mode which passengers will choose to use
- Reviewing the network with others to ensure resources are used to best effect
- Improving bus punctuality through commercial partnerships and better management of the highway network
- Developing accessibility to employment, shopping, education, leisure and health facilities by effective design of the bus network, the use of less conventional approaches and securing maximum external funding
- Continuing to improve vehicle quality and associated infrastructure at bus stops and interchanges to increase access to the network by those with impaired mobility
- Raising awareness and encouraging the use of bus services through improved information, marketing and branding

Options for enhancing bus services in the UTP area are expected to contribute to these requirements.

3.4 Potential Role of Bus Travel in Cheshunt and Waltham Cross

It is clear that a large proportion of the population in Cheshunt and Waltham Cross commute to London. By providing sustainable transport options to and from London, peak congestion can be better managed.

The residential areas of Cheshunt and Waltham Cross are arranged in distinct clusters and corridors. This layout gives the potential for bus services to reach a large catchment and to provide services between residential areas, the town centres and the key rail stations thereby assisting commuter movements.

3.5 Review of Existing and Committed Proposals and Problem Identification

3.5.1 *Overview of Existing Facilities and Committed Proposals*

At present, there is one bus station within the study area. This is at Waltham Cross, which serves as a significant interchange for travel from the north of the county into London.

Buses calling at Cheshunt town centre do not have a dedicated bus station facility and stop in a two on highway bus priority zone. Whilst there is a bus stop in the Greater Brookfield centre, the lack of frequent services means that the bus stop is not heavily used.

3.5.2 *Waltham Cross Bus Station*

Waltham Cross bus station is located in the town centre and is operated by Transport for London (TfL). It provides an enclosed waiting area and bus

stands for departing services and is easily accessible to the main shopping area. Buses arriving at the bus station drop off passengers on Eleanor Cross Road before entering the bus station where they may layover for a time before accessing one of four departure stands at the bus station.

The bus station serves buses operating out of the London area as well as services operating in Hertfordshire and Essex. Owing to the different regulations that apply to London bus services and County bus services, few bus services operate across the Greater London boundary and the majority of routes operated from the bus station either commence or terminate there. Waltham Cross bus station is therefore used as an interchange between bus routes as well as a destination in its own right. However, no information is available on the extent of bus interchange currently taking place at the bus station.

Although close to the town centre, the bus station is less well located in relation to Waltham Cross railway station (some 300 metres distant) but is close enough for interchange between bus and rail to occur. However, the pedestrian route between the bus station and the rail station involves use of subways beneath and through the Monarchs way roundabout. No information is available on the extent of bus-rail interchange via the bus station.

Buses arriving at the bus station set down passengers on Eleanor Cross Road behind the bus station building. This location is not particularly welcoming and the pavement is not raised to assist alighting, particularly for those with impaired mobility. In addition, at peak times, the set down area can become congested leading to buses dropping off passengers on the residential section of Eleanor Cross Road. This is very unsatisfactory and the position could worsen if there is any increase in bus services accessing the bus station.

Although the departure stands appear to operate efficiently, there is a significant issue with layover space at the bus station in that existing spaces need to be reduced for health and safety reasons and this will necessitate buses having to layover elsewhere. The options for this within the immediate bus station area appear limited.

It is therefore apparent that the current bus station facility has insufficient capacity and there have been ongoing considerations for expansion. TfL have been contacted regarding this and indicated that although they agreed the bus station was suffering from capacity problems they could not see a realistic chance of enlarging it. However, they did indicate that if any land became available then expanding the bus station would be considered.

In addition to the problems of capacity at the bus station, at peak times buses can get caught up in congestion on the surrounding network which can impact negatively upon bus reliability and journey times. A possible solution could be the provision of bus lanes in the Eleanor Road/Monarchs Way area, including possible signalling of Eleanor Road/Monarchs Way roundabout. However, such measures could have a detrimental impact by increasing congestion for general traffic.

As part of the development of the UTP, an option has been considered to provide signal control at the Eleanor Cross Road approach from the bus station to the Monarch's Way roundabout, together with capacity enhancements to the roundabout itself. This investigation has not confirmed a viable scheme that would benefit buses while not adversely impacting on general traffic. However,

the investigation has demonstrated that there is an imbalance between capacity on the highway network around Waltham cross town centre and elsewhere on the highway network in the wider area, for example, link capacity on Eleanor Cross Road /Station Road. There could therefore be scope for a wider traffic management scheme which could include reallocation of road space to buses and goods vehicles.

3.5.3 *Bus infrastructure*

The site visit around the study area showed that the standard of bus stops varies in terms of shelter provision, level boarding, and timetable information. There is no real time information available at bus stops within the study area for bus services.

Feedback from stakeholders suggests that the standard of bus stops is not high enough. HCC officers have indicated that the Lea Valley Green route bus stops have all recently been assessed with the most highly used and key bus stops being upgraded. In the future HCC has indicated that new stops and stop upgrades will now normally be tied in with funding associated with new developments. To assist in identifying priorities for bus stop enhancements a bus stop audit could be carried out across the study area to provide a data base of facilities available at each stop, and levels of bus passenger usage.

There is an on-going bus stop improvement programme whereby all stop flags are currently being rebranded to show stop names with descriptions being revised as part of the process which will assist in delivery of real time. Key bus corridors are initially being targeted and these have largely been completed. In addition, a number of new and improved bus shelter have now been installed along key routes in association with Clear Channel.

However, there are still many stops where DDA improvements are required and it is envisaged that these will be addressed when suitable funding is identified. Requests for bus shelter provision are judged on merit and funding availability.

Feedback from stakeholders also indicates that is a lack of easily accessible bus service information and that real time information would be welcomed. Real time information is seen as an important means of raising the profile and attractiveness of bus transport. Within London the introduction of real time information has provided great benefit to the travelling public allowing them to make decisions on the type of journey to be made. As services are less frequent on Hertfordshire routes when compared to London routes it is felt that real time information will give a greater assurance to the travelling public of when their service will arrive. HCC is already committed to rolling out real time information across the County and implementation within the study area will be taken forward as part of this wider programme.

Substantial bus information is already available on the internet via the HCC and intalink websites. This could be supplemented through provision of improved information on street, for example in town and local centres, and through direct marketing to homes and places of employment.

There is no evidence to suggest that there is any level of dissatisfaction with the standard of maintenance of the bus stops. A number of bus shelters in the area are maintained under a contra agreement with Clear Channel who, in return for advertising space, maintain some shelters. This arrangement needs to be reviewed regularly to ensure that opportunities to extend provision of bus shelters are fully explored.

At present the only bus lanes in the area are at The Pond and on Crossbrook Street/High Street between Cheshunt and Waltham Cross. Illegal parking along these lengths often causes disruption to the bus lane operation.

3.5.4 *Bus Services to Specific Areas*

The feedback received from stakeholders has generally indicated that the majority of areas in the study area are fairly well served by buses. However, the study has highlighted a number of locations where a higher level of service could raise levels of bus use.

In particular, services to the Brookfield Centre are relatively infrequent. The Brookfield Shopping Centre is an out-of-town shopping centre situated in the north of Cheshunt adjacent to the A10. The largest two stores are Marks and Spencer and Tesco, with many smaller stores in Brookfield Retail Park. The area is therefore an important centre which serves the whole of the study area and adjacent towns.

As Brookfield Centre is a new retail centre, it is not at an established bus node. Although measures have been taken to increase bus access to the area, it remains relatively poor. This affects mode choice of employees and customers alike and contrasts starkly with the high level of access by car and the availability of extensive free car parking.

There are plans to expand the Centre and it will be important in transport terms for this potential expansion to include a step change in bus access. It will also be important for the planning of this development to include the need for a parking management plan that could seek to achieve a more level playing field in cost terms with the cost of access to the centre by bus and an approach to parking management (including pricing) that is consistent with that operating at town centres across the Borough of Broxbourne.

Feedback from stakeholders also suggests that getting to hospitals within the study area by bus is difficult. This issues is already being addressed through the 'Hospital Hopper' service. The Broxbourne health shuttle service has run to Chase Farm Hospital in north London since the beginning of April 2007, funded by the Borough Council and Hertfordshire Integrated Transport Partnership.

The service is now running with two vehicles, with one serving Chase Farm and Barnet Hospitals and the other serving the QEII in Welwyn Garden City, the Lister Hospital in Stevenage and Hertford County Hospital. A single journey to Chase Farm, Barnet and Hertford hospitals costs £5. Single journeys to the QEII and Lister hospitals cost £8 and £12 respectively. A discount of 25 per cent is available for frequent users who have made ten or more trips. The usage of the service has increased in each year it has been available (shown in ***Figure 3.3*** below).

Figure 3.3: Hospital Hopper Usage (Source: Hospital Hopper Usage Report)

The hospital hopper usage report identified the following:

> *"The revenue collected by the service charges equates to an average of £5.59 per journey against an average journey cost of £21.71 i.e. 25.75% of the cost of an average journey is recouped by charging. Each journey is currently being subsidised by around £16 a journey but this figure is coming down; at the end of the 2007/08 financial year, it was around £22.*
>
> *It is likely that price increases will do little to reduce the subsidy; the most effective way of increasing revenue may be to increase average loading by increasing take-up through increased marketing."*

In terms of scheduled bus services, it would appear that East/West bus transport links are relatively poor, in particular to Cheshunt rail station and the employment area centred on Delamare Road, including the Tesco head office nearby. Public transport has grown up along the older north-south axis while newer areas to the west of Cheshunt have had to rely on the development of new services. The potential further expansion of the Brookfield Centre provides an opportunity to enhance East / West bus links in conjunction with the development.

3.5.5 *Other Issues*

Stakeholder feedback indicates that there is a need for cross border unified ticketing. Although there are a number of unified ticketing promotions, such as 'PlusBus' and 'Explorer', there is scope for expanding these schemes. This will require engagement between TfL, HCC, Arriva, Metroline and other interested parties.

HCC seek to maximise funding opportunities for improving bus services. However, funding for the maintenance and enhancement of bus services and facilities across the area is constrained. Bus improvements are generally brought forward as part of County-wide programmes or as a direct consequence of developer contributions. These are received generally as one-off or time limited payments. This approach could be improved through the

adoption of a strategy for developer contributions across the area which could deliver a regular revenue stream for enhancements to bus services and facilities.

3.6 Summary of Problems

Table 3.1 list summarises the bus problems identified through consultation and investigation:

Table 3.1: List of Bus Problems

BUP1	Illegal parking in bus lanes
BUP2	Capacity constraints at Waltham Cross bus station leads to congestion and safety concerns
BUP3	Low frequency of some bus services, in particular in the evenings and at weekends
BUP4	Travel to London is not fully integrated, both in terms of ticketing and services
BUP5	Inadequate services to other towns
BUP6	Inadequate services to hospitals
BUP7	Poor east-west links
BUP8	Poor integration of bus and rail services
BUP9	Quality of buses is perceived as being poor, particularly access to buses for the disabled and mobility impaired. (Currently 90%+ of buses are DDA compliant and all buses must meet this standard by 2017.)
BUP10	Lack of awareness of bus routes and timetables
BUP11	Bus stop infrastructure is substandard at some locations
BUP12	Limited bus services to Cheshunt rail station
BUP13	Bus fares are expensive compared to London
BUP14	Positioning of taxi rank at Waltham Cross causes congestion for buses at the bus station
BUP15	Low proportion of sustainable travel to Brookfield due to over-provision of parking and lack of bus services
BUP16	Poor bus reliability and journey times
BUP17	Poor positioning of bus stops (perceived problem)

3.7 Urban Transport Plan Bus Options

3.7.1 Waltham Cross Bus Station

Although feedback regarding Waltham Cross bus station and its facilities has been fairly positive, a number of issues have been identified, particularly related to capacity and congestion. There is scope to expand the bus station but this would involve land acquisition and creating a larger bus station could potentially involve a major (over £5m scheme).

Taking this forward would require a partnership involving TfL, HCC and BBC working together and a high level of commitment by TfL. However, there is no evidence that an expansion scheme would form a priority compared with other potential bus improvements that TfL may wish to progress. This requires further investigation.

Expansion of the bus station at the existing site with a new layout and bus circulatory system could address the capacity problem in relation to setting down by providing additional space for this. Some reorganisation of bus arrival and departure times could also assist by scheduling a short time before arrival and departure of some buses, enabling buses to set down at a departure stands.

One of the capacity issues for the bus station relates to inadequate provision of safe layover spaces. Having more space within the bus station for layover would be an advantage, but this could be an inefficient use of valuable town centre land as well as being visually intrusive. A possible solution to this problem could be to enable a number of services to terminate and layover in the vicinity of Waltham Cross rail station rather than at the bus station (after calling at the bus station first). There is scope for providing layover space on-street in this area, while having bus services terminating close to the rail station would improve interchange between bus and rail.

This approach would require buses to set down and turn round at the bus station in order to continue on to the rail station. The scope for this requires further investigation and liaison between HCC, TfL and bus operators. Arriva and Metroline have been contacted regarding this possibility and Arriva has indicated that, providing that the access and egress was suitable and the layout did not present undue risk of accidents, it could support the proposal. However, Metroline has indicated that it would not be in support of running services to the train station due to the likely adverse impact on commercial viability.

A scheme to extend bus services to Waltham Cross rail station will place an increased importance on the provision of bus priority measures to avoid services being impacted by congestion at the Monarch's Way roundabout. Upgrading of the existing bus stop facility at the rail station would also be necessary. As part of a planning agreement for Park Plaza development, a shuttle service currently operates between the development and Waltham Cross rail station.

Public transport interchange between Waltham Cross bus and rail stations could also be assisted if the existing pedestrian route between the two is improved. The link between the bus station and the rail station is perceived to be unattractive and unsafe as it involves use of subways through the Monarchs Way roundabout. Signage directing pedestrians between the two locations is also relatively poor. One possible solution includes improving both the route and the signage and providing a toucan crossing, as discussed in the Walking and Cycling section of this Appendix.

Information available at the bus station is predominantly based around the services which TfL operate. For other services there is an Intalink computer available where information can be accessed however this is the only place where county service information is available. TfL has been consulted on whether further information regarding county services could be displayed at the bus station and their response is included below. They indicated that they

would be willing to discuss what enhancements could be made to information for county services whilst at the same time complying with their own guidelines for these.

In addition, Arriva were asked what additional information they would like to see at the bus station. They would like information displayed for all services that use the bus station and would also like extra publicity available to promote their period and area wide tickets

The recent improvements to Windmill Lane in Cheshunt have improved access to Cheshunt Station. This has also improved conditions for buses on the route. If the 'Greater Brookfield' development proceeds, this could assist in providing improved services to Cheshunt station, which also serve the Delamare Road employment area. However there are constraints with the size of vehicle that can be used on the route as buses are required to turn around via the station car park. A bus stop is to be provided within the car park close to the station entrance to serve passengers boarding at this point.

3.7.2 *Bus infrastructure*

A number of concerns have been raised about cars parking in bus lanes (both in terms of journey time implications for the buses and in the safety of those passengers boarding and alighting), and the lack of enforcement regarding this issue. Stakeholders thought that this was particularly an issue in the bus lane from Waltham Cross to Theobalds Grove. This could be overcome by increasing the level of enforcement. In addition, stakeholders considered that the bus lane on Crossbrook Street was not as efficient as it could be as the road is not wide enough for two lanes. It is unlikely that road widening would be possible to improve efficiency. However, it has been identified that cars also park in the bus lane regularly and to improve operation improved enforcement is required.

In general, there appears to be limited opportunities for additional bus lanes owing to the constrained nature of the local highway network and the high cost associated with road widening. As referred to in Section 3, the highway network in the vicinity of Waltham Cross bus station includes dual carriageway provision and this could facilitate the provision of bus lanes. However, any reallocation of roadspace in this area from general traffic to buses could have a serious impact on traffic flow.

As part of the preparation of the UTP, an investigation has been carried out into the signalisation of the Eleanor Cross Road west approach onto the Monarch's Way roundabout from the bus station, together with some modifications to the layout of the roundabout. However, this investigation has not demonstrated that such a measure would benefit buses accessing the roundabout from the bus station.

Congestion at the Monarch's way roundabout is caused partly by congestion on Eleanor Cross Road to the east of the roundabout. There appears little prospect for improving this situation and there may be scope to provide bus lanes in the vicinity of Monarch's Way roundabout that would not have an adverse impact on the operation of the wider network. This could be further investigated in conjunction with developing a local bus access strategy for the Waltham cross area.

3.7.3 *Bus Services to Specific Areas*

To increase bus accessibility to an expanding Brookfield Centre, frequency and range of services need to be increased. There will be opportunities to provide a subsidy to provide additional services through developer agreements, including re-routing existing services to call at the centre subject to consultation with bus operators. Given the potential scale of future development in the Brookfield area, there is potential for the development to facilitate new routes that could extend to Ware and Hertford.

Metroline were contacted regarding diverting the 242 service to the Brookfield Centre and their response indicated that any diversion of the service (242) would involve extra costs and they were not convinced that there is a substantial market for travel to Brookfield from the Cuffley area. By diverting Route 242 Metroline feel that the service would materially extend journey times for passengers travelling to / from Cheshunt and Waltham Cross. They also indicated that routes C1, C2 and C3 (TrustyBus) already operate to / from the Brookfield Centre every 30-60 minutes from many areas of Rosedale, Cheshunt and Waltham Cross; and they see no need for any extra services.

These options and issues need further consideration as part of the detailed consideration of travel and transport issues that will take place as proposal for development at Brookfield come forward.

The hospital hopper is providing an important service and there is scope for this to be enhanced. From an operational point of view further marketing of the hospital hopper would be the best way to increase patronage levels and reduce subsidies to make it a more commercially viable. It is suggested that further promotion of this service, possibly including posters in bus stops, should take place. Marketing is currently undertaken by BBC in partnership with the PCT, and HCC.

There is also a need for improved east-west links. Arriva and Metroline have been contacted about providing improved/additional East/West services. Arriva has indicated that they already operate service 251 which connects Upshire with Hammond Street, via Waltham Abbey & Waltham Cross and service 250 from Loughton to Waltham Cross.: They have no plans to change these services. Metroline has indicated that the additional east/west services may not be commercially viable and could therefore require a subsidy.

Stakeholders have also reported that they thought that evening and weekend services are too infrequent. HCC already provide subsidies for services which are socially necessary. The provision of subsidised bus services is reviewed on a regular basis and this could include further consideration of services within the UTP area.

3.8 Delivery

Delivery of UTP schemes is categorised into short term (0-2 years), medium term (3-5 years) and long term (greater than 5 years).

3.8.1 *Assessment of delivery years*

The determination of whether a proposed bus UTP scheme is suitable for short, medium or long term delivery has been considered through an assessment framework using a range of criteria (see Section 7 of this Appendix). assessment criteria. Although schemes have been ranked in terms of

anticipated outcomes and contribution to key LTP targets, programming is heavily dependent on feasibility. This relates to:

- scheme cost/affordability;
- availability of funding;
- contribution to a package of schemes;
- linkage with development
- agreement between delivery partners (where more than one agency is responsible for funding).

Schemes with lower risk factors were deemed as being feasible for short term delivery, whilst those with higher risk factors were identified for medium and long term delivery. Nevertheless, where possible, priority would be given to those schemes that produce the greatest benefits in relation to cost.

3.8.2 *Funding opportunities*

A principal source of funding for bus infrastructure improvements in the UTP area comes through the Hertfordshire County Council's LTP. This funding supports a range of transport improvements and is allocated to programmes across the County. Bus improvements in the UTP area therefore have to compete with other priorities across the County. The allocation of funding is closely related to the delivery of LTP indicators and the Council's Bus Strategy being supported by a priority assessment process covering the County as a whole.

A second key source of funding is linked to new development proposals. Where a development needs to be supported by improved bus access, contributions may be sought for improvements in bus infrastructure.

Funding for improvements to bus services can be provided through the County Council's revenue programme. However, this is heavily constrained and the focus is on supporting socially necessary services rather than increasing frequency of services. In addition, where a new service, or an enhancement to an existing service, is required to provide a high standard of bus accessibility to a new development, developer contributions can be sought for this.

Funding for bus enhancements may also be sought from government competitions aimed at promoting increased bus patronage. Improved bus services and facilities may also be pursued through partnership with bus operators and through Quality Bus Partnerships.

3.8.3 *Delivery programme*

Through the review of bus operations, problems and opportunities in the UTP area outlined above, and in consideration of the feasibility and funding situation for bus improvements, opportunities, ***Table 3.2*** summarises the list of bus measures proposed for the UTP area categorised into delivery periods:

Table 3.2: Bus Schemes for Short, Medium and Longer Term Delivery

Scheme Reference	Scheme Description
Proposed Short Term Schemes	
BU01	Provide more information on county services at Waltham Cross

	bus station through provision of journey planning maps and more accessible electronic passenger information points
BU16	Provision of bus shelter at Cheshunt rail station
Proposed Medium Term Schemes	
BU03	Modify existing bus services to directly serve Waltham Cross rail station (working with bus operators)
BU04	Provide an additional bus stop facility at Waltham Cross rail station to allow additional bus services to call there
BU05	Increase frequency and range of bus service stopping at Cheshunt Station (working with bus operators)
BU06	Provide real time bus information and electronic passenger information points at bus stops starting with those most heavily used. (Stops at The Pond, Theobalds Grove rail station, Waltham Cross bus station and Brookfield Centre)
BU07	Provide bus real time information on the HCC web site
BU13	Support and promote the hospital hopper
BU14	**Study** - Work with BBC, TfL and other bus operators to investigate capacity and layover issues at Waltham Cross bus station
Long term schemes	
BU02	Study - Provide bus priority facilities and signalisation at Monarchs Way roundabout
BU11	Provide improved east-west bus services in the Cheshunt area (working with bus operators)
BU12	Provide minimum half hourly bus services from all parts of the area to Brookfield Centre (working with bus operators)
BU17	Implementation of public transport facilities in line with Brookfield Masterplan

AECOM

Rail

4 Rail

4.1 Introduction to Rail

This section of the appendix provides a discussion of the existing rail services and the pressures on the network in and around Cheshunt and Waltham Cross. It examines the existing issues and identifies possible schemes, some of which have already been identified, in order to enhance the current level of service or infrastructure provision on the local network.

Issues relating to network capacity have been considered as part of the Greater Anglia Route Utilisation Strategy published in December 2007. This is reviewed as proposed rail improvements for the wider network will affect rail usage up to 2016 and beyond. Issues on a more local level are also considered, focussing upon accessibility to services, information and facilities and options for enhancing the quality of rail facilities in the short, medium and longer term.

Information has been collated from a number of published documents, from various technical and non-technical websites, through on site observations and from representatives of relevant Local Authorities and stakeholders.

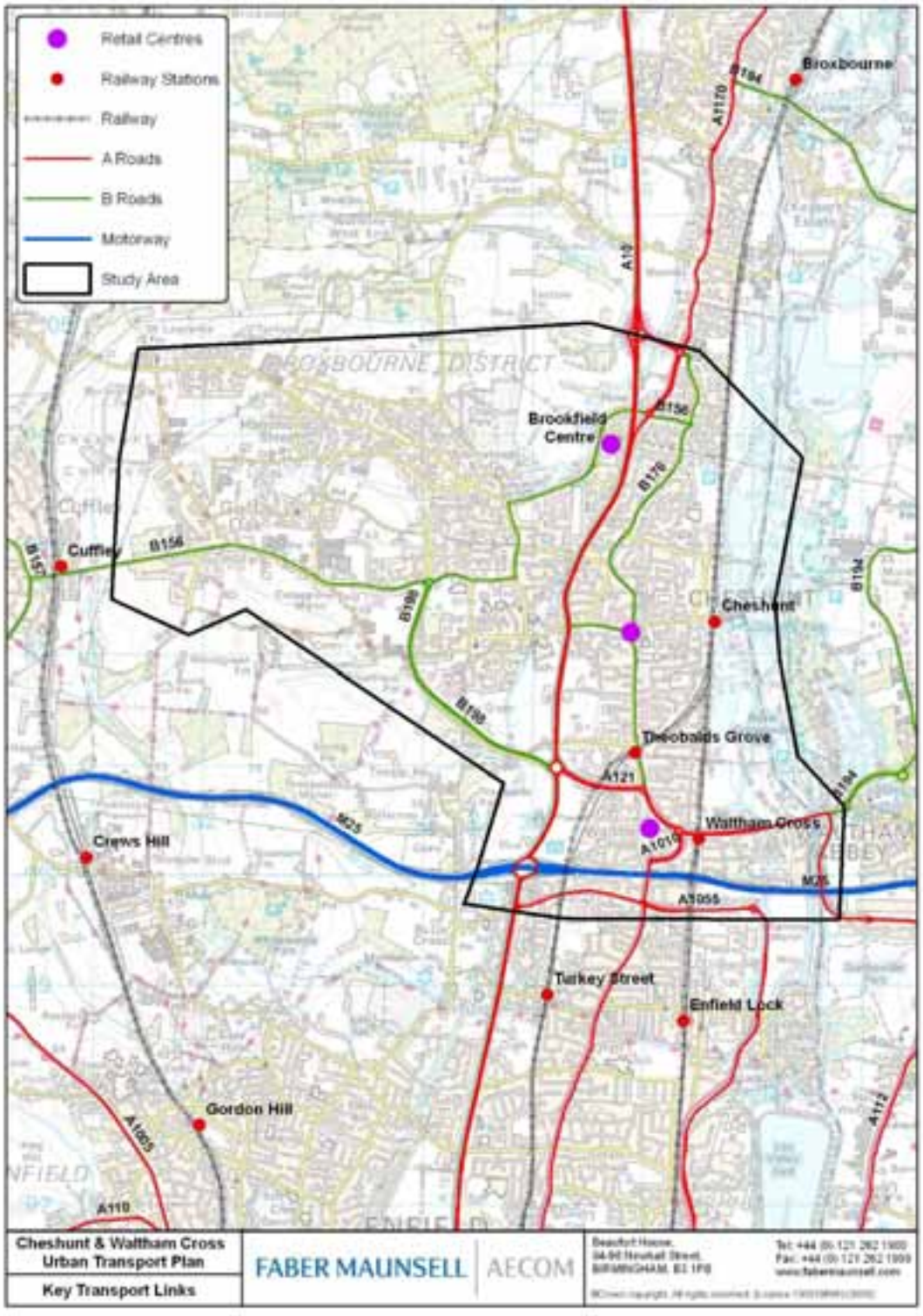
4.2 Background to Rail Travel and Facilities in Cheshunt and Waltham Cross

According to the Cheshunt and Waltham Cross Draft Data Report (2007) the rail modal share for out-commuting trips from Cheshunt was 16.74% and 13.79% for Waltham Cross. The rail modal share made up 3.10% and 2.28% of in-commuting trips to Cheshunt and Waltham Cross, respectively. For those working and living in the town, the rail modal share was 1.63% and 2.90% for Cheshunt and Waltham Cross, respectively.

The two main rail stations within the area (in terms of use) are Cheshunt and Waltham Cross. Cheshunt rail station is situated to the east of the town, adjacent to the Lee Valley Country Park. Waltham Cross rail station is situated slightly to the east of the town centre where access on foot is via an underpass system. A third rail station, Theobalds Grove, is also in the area. Its location is more central than Cheshunt and Waltham Cross rail stations, however services and facilities are relatively poor and hence it is much less utilised. Rail services from all stations provide direct access to London.

The location of rail stations that serve the study area is shown on ***Figure 4.1*** on the following page.

Figure 4.1 Location of Train Stations Serving the UTP Study Area



4.3 Policy and Strategy Context for Rail Travel in Cheshunt and Waltham Cross

4.3.1 *Hertfordshire County Council – Rail Strategy*

The Hertfordshire Rail Strategy is a daughter document to the LTP2 and sets out the role of the rail network in meeting the transport needs of Hertfordshire during the current plan period until 2010/11. The Rail Strategy has been developed by HCC and helps to shape the strategic context within which services operate. Although it has no direct influence over specific services or operation, the Rail Strategy is a useful tool in influencing station improvements or the marketing of enhanced facilities or services. Crucially, the Rail Strategy has an important role in the integration of bus and rail services, which is currently an issue at the three stations within the study area.

HCC encourages train operators to adopt a more proactive stance on integration and stresses the importance of partnership working between train operators, bus companies and the local authority. HCC is also committed to ensuring that rail capacity is adequate for commuters and off-peak travellers in light of the predicted growth of the population and employment, and to promoting those improvements which benefit rail users within the County as a whole. As part of the Rail Strategy, HCC will press for the following measures which are relevant to the three stations within the study area:

- A minimum of half hourly frequencies (15 minutes in major towns);
- All stations to have an hourly (minimum) Sunday service;
- First trains from all stations to arrive in London before 0600 (Mon-Sat) and 0800 (Sun);
- Last trains to all stations to leave London between 0001 and 0100;
- The provision of standard clockface timetabling at all stations (excluding peak);
- During peak periods, all passengers on journeys longer than 15 minutes duration shall be seated;
- The provision of 6/8/12 car trains wherever possible to improve capacity;
- Integration of general and 'special' (i.e. airport) services to minimise connection times;

In addition to the measures listed above, the Rail Strategy sets out plans to encourage Train Operation Companies (TOC) to adopt innovative ticketing measures, such as special fares for contra-peak travelling and school/college season tickets. The Strategy also clearly states an intention by HCC to encourage access to all stations by bus, cycle, foot and taxi where feasible.

The Rail Strategy stresses the importance of accessibility and integration in the delivery of high quality and efficient rail services in the Borough of Broxbourne, highlighting the following measures as priority action areas:

- Encouraging TOC's to work with local bus operators in order to develop east-west feeder bus services which connect with the north-south rail network. It is envisaged that the PlusBus scheme will be used to support such initiatives (the County Council expects all local train operators to become Intalink partners);

- Working with train operators to ensure that trains serving Stansted Airport stop in the borough;
- Ensuring that the TOCs and the District and Borough Councils work together to establish clear car parking capacity guidelines and charging policies at the station and surrounding streets, which could ultimately affect the attractiveness of the rail service;
- Implementation of the guidelines set out in the "Railways for All" consultation document, which sets out the Government's priorities for improving accessibility to railway stations and associated services and facilities;
- Working with TOC's and Network Rail to develop improvement schemes for station facilities. These may be funded through the franchise agreement, through the LTP (where specific LTP outcomes can be achieved), or through developer contributions where appropriate.

The key interests of the County Council as outlined in the Rail Strategy can be summarised as follows:

- Improved access for bus services to stations;
- Secure cycle storage facilities and signage to cycle routes to stations;
- Safer access for pedestrians;
- Access for taxis and sheltered waiting accommodation for their passengers;
- Alterations to forecourt layouts to improve circulation and reduce conflict;
- DDA improvements, subject to agreement on priorities with TOC's and Network Rail;
- Improved signage and information displays through the Intalink partnership.

4.3.2 *Network Rail – Route Utilisation Strategy (RUS)*

Network Rail has set out its intentions to improve the West Anglia Route, focussing on the existing problems of overcrowding between Cambridge and London and the need to accommodate future passenger numbers in the context of population and employment growth in the region. Network Rail has set out a number of medium and long term enhancements in its RUS, including the use of 12-car trains on all outer suburban services between Cambridge and Stansted Airport to Liverpool Street and associated platform lengthening. In the longer term (up to 2019) the removal of level crossings is being considered to improve the performance of the route. It is also recommended that the West Anglia route via Tottenham Hale is four-tracked between Coppermill junction and Broxbourne junction to provide extra capacity for an additional 6 trains during the peak hour.

4.3.3 *NXEA Service Level Commitments*

As part of the NXEA Service Level Commitment, the train operators are obliged to provide a minimum level of passenger services during the franchise period. NXEA currently hold this franchise until 2011 and therefore must ensure that the service level commitments are fulfilled during this period, which includes providing a minimum number of services at certain times of the day on all of its

routes, affecting the number of trains passing through and stopping at Cheshunt, Waltham Cross and Theobalds Grove stations.

4.4 Potential Role of Rail in Cheshunt and Waltham Cross

The location of Cheshunt and Waltham Cross are such that employment opportunities in London are readily accessible. Rail provides a sustainable means to travel into London, at a much faster speed than currently achievable by bus.

The rail network also enables journeys to Cambridge and Stansted to be made easily.

4.5 Review of Existing and Committed Proposals and Problem Identification

4.5.1 *Services*

The passenger services serving Cheshunt, Waltham Cross and Theobalds Grove are provided by National Express East Anglia and operate on the 'West Anglia' route. The current franchise is held until 2011, with a possible extension through to 2014.

Cheshunt and Waltham Cross stations lie on the West Anglia Main Line (WAML) from London Liverpool Street to Cambridge and Kings Lynn. This runs parallel to the Southbury Loop, providing local suburban services between Cheshunt and Liverpool Street. Both routes provide a regular service into London, calling at Severn Sisters on the Southbury Loop, and Tottenham Hale on the Lee Valley/WAML on route to Liverpool Street station. To the north, direct services are provided to Hertford East, Stansted Airport, and Cambridge, where connecting services are provided to the Midlands.

Waltham Cross is approximately 13 miles north of London Liverpool Street station, with Cheshunt located approximately 1 mile further to the north. Cheshunt Station is served by two routes from London, one via Tottenham Hale (the Lee Valley) and one via Seven Sisters (the Southbury Loop). Waltham Cross is served via the Lee Valley line only.

Theobalds Grove is adjacent to Cheshunt station on the Southbury Loop, which serves Liverpool Street via the Seven Sisters tube station. The Southbury Loop is a slower line than Lee Valley, and has 15 stops between Cheshunt and Liverpool Street compared to 12 on the Lee Valley line.

There is some variation in the journey times to London due to the mixture of high speed and slower services operating on the route, as shown in ***Table 4.1***.

Table 4.1: Typical journey times into London (May 2009)

	London Liverpool Street		Stratford	
	AM Peak	**Off-Peak**	**AM Peak**	**Off-Peak**
Cheshunt				
i) Hertford East route	i) 32 minutes	i) 22 - 30 mins	i) 29 minutes	i) 23 minutes
ii) Cambridge route	ii) 26 minutes	ii) 22 minutes		
iii) via Southbury	iii) 43 minutes	iii) 39 minutes		

Loop				
Waltham Cross	30 minutes	27 minutes	26 minutes	No service
Theobalds Grove	40 minutes	36 minutes	No direct service	No direct service

Services to London Liverpool Street from Theobalds Grove station are up to 14 minutes slower in the morning peak than from Cheshunt, whilst the same journey from Waltham Cross is 5 minutes slower despite it being further south on the line. This is because there are limited stops on the faster, Cambridge service south of Cheshunt, which does not call at Waltham Cross. In addition, services calling at Waltham Cross operate from Hertford East, which has multiple stops between this station and the London terminus.

During the peak periods, the West Anglia route is largely used by commuters travelling to and from London. The line runs parallel to the M11, one of the main routes into the heart of London. Consequently, this corridor experiences high level of congestion during the morning peak, and the West Anglia line therefore provides an attractive alternative route into the Capital. The level of service provision is relatively constant during the day, with little scope to increase the number of peak services due to existing capacity constraints on this route. An additional service is provided between Waltham Cross and Stratford on the Hertford East line during the morning peak, as illustrated in ***Table 4.2***. Stratford was added as an alternative London Terminus in December 2005, which is available on the faster Lee Valley line via Waltham Cross and Tottenham Hale.

Table 4.2: Peak Hourly Services by Station (direct trains per hour)

To	**London Liverpool Street**	**Stratford**	**Cambridge**	**Stansted Airport**
Cheshunt	Peak – 7 p/h off-peak – 6 p/h	peak – 2 p/h off-peak – 1 p/h	peak – 4 p/h off peak – 2 p/h	1st train departs 09:57, hourly.
Waltham Cross	peak – 3-4 p/h off-peak – 2 p/h	peak – 2 p/h off-peak – 0 p/h	No Direct Services	One daily service, departs 18:55
Theobalds Grove	peak – 2 p/h off-peak – 2 p/h	No direct service	No direct Services	No direct service

Note: *Direct trains only. Peak hour – arrivals between 08:00 – 09:00 (Timetables valid from 17th May 2009)*

There is relatively little freight traffic passing through Cheshunt, Waltham Cross and Theobalds Grove stations.

4.5.2 *Existing Demand*

The main West Anglia line south of Cambridge is a popular commuter route and as a consequence, trains are often overcrowded during peak periods. The main demand is for services into London Liverpool Street, whilst a significant number of passengers interchange at Tottenham Hale and Seven Sisters.

For the West Anglia routes (including both routes to Cheshunt and as far out as Cambridge) the average peak passenger load is similar to the number of seats. The busiest flows in the hour from 0800 are Cambridge-London at 150% of

seating capacity, Hertford-London at 141% and the Southbury Loop services at 135%. These figures apply at Tottenham Hale or Seven Sisters where loadings are higher than at Liverpool Street.

The route also serves Stansted Airport and Cambridge, which is a popular tourist destination. The demand for passenger services is therefore relatively high during the inter-peak in addition to the peak periods, which further exacerbates the capacity issues.

According to Network Rail's Route Plan (2008), passenger numbers on the West Anglia route have experienced a year on year growth in passenger numbers since 2005. The continued demand for commuter services into London, coupled with the introduction of a direct service to the Docklands in 2005 and increasing levels of road congestion on the M11, are factors which will continue to attract passengers to the West Anglia route, despite the evident capacity constraints.

Cheshunt, Waltham Cross and Theobalds Grove stations are all relatively well used, with Cheshunt being the busiest of the Borough's five stations. Latest figures published by the Office of Rail Regulation indicate that almost 1.9 million passengers travelled to/from or through Cheshunt station during 2007/08. Almost 10% of this is associated with passenger interchange, with Cheshunt providing connecting services to Stansted Airport and Cambridge (for services to the Midlands).

The number of entries and exits at Cheshunt Station during 2007/08 was more than double the number at Waltham Cross station, and more than seven times that of Theobalds Grove (based upon latest ORR data for 2007/08). The number of entries and exits at Cheshunt Station was 10.4% higher in 2007/08 than the previous year, which is slightly higher than the national figure of 8% (Delta Rail, 2009). Both Theobalds Grove and Waltham Cross experienced a decline in entries and exits during this period, as illustrated in ***Table 4.3***.

Table 4.3: Station usage

Station	2007/08 Entries & Exits	2007/08 Interchanges	Change (Entries and Exits)	
			2006/07 to 2007/08	2002/03 to– 2007/08
Cheshunt	1,692,201	187,508	10.4%	28.0%
Theobalds Grove	222,252	-	-4.6%	-17.3%
Waltham Cross	704,582	-	-0.1%	1.4%

Data compiled by ORR – based on ticket sales

Although there is some variation in the way that data has been collected, ORR statistics show that Cheshunt station has experienced a growth in passenger numbers since 2002/03, whilst Theobalds Grove has encountered a significant decline. The number of entries and exits at Waltham Cross station has remained fairly constant since data was first collected in 2002/03, with actual passenger numbers increasing by 9865 from 2002/03 to 2007/08, compared to 370,584 at Cheshunt station during the same period. Patronage at Cheshunt station has increased by over a quarter during the last five years, as shown in Table 4.3.

The data published by the ORR also suggests that the decline in the number of entries and exits at Theobalds Grove has occurred more recently, with a significant reduction in passengers boarding and alighting at the station between 2005/06 and 2006/07 (-15.5%). Some of this can be attributed to significant changes made to the data collection during this period. However, the figures do reflect the decline in usage of this station, which has continued to occur (albeit at a slower rate according to latest ORR data). Theobalds Grove remains the least used of the five stations located within the Borough, which includes Rye House and Broxbourne stations in addition to Cheshunt and Waltham Cross.

4.5.3 Existing Capacity Constraints

Network Rail's Capacity Utilisation Index (CUI) indicates that the Lee Valley section of the route, which runs through Broxbourne, is currently operating in excess of 90% of the total available capacity. This is due to a number of factors, notably the mixture of fast and slow services through the Lee Valley and the different stopping patterns of the existing services. The following issues have been identified in Network Rail's Route Plan (April 2008), specifically relating to network capacity within the Lee Valley area:

- The mixture of fast and stopping services on the two track Lee Valley line leads to congestion and performance risk through much of the day;
- The provision of any additional services on the congested Lee Valley line will impact upon the length of time the level crossings are closed to road traffic;
- Intensive platform utilisation and congestion on the throat at Liverpool Street hinders further capacity enhancements;
- High congestion on the two track section between Cheshunt and Broxbourne junctions.

Although freight traffic is relatively low in comparison to passenger services, there is no segregation of freight and passenger traffic on the West Anglia main line. The impact of freight traffic can therefore exacerbate the capacity issues along the route. Likewise, due to the intensity of the services operating on the West Anglia route, any minor disruptions can have a significant impact upon services with respect to journey time and punctuality.

As the route is operating almost at full capacity, there is limited scope to increase the number of services despite the predicted increase in passenger numbers. Therefore, a number of potential schemes are being actively investigated or implemented which will increase the operational capacity of the route. Proposed and committed schemes are discussed in more detail in the following section.

4.5.4 Future Service Demand

Demand patterns on the West Anglia Main Line are dominated by commuting to central London. However, there are also a number of other important markets, including growing demand at Docklands, Stansted Airport and Cambridge.

Passenger numbers on the West Anglia Route have increased at an approximate rate of 2% per year since 2005 (Network Rail, 2008). This rate is predicted to increase in future years due to ongoing population and economic growth around the M11 corridor and the proposed expansion of Stansted Airport. Network Rail's Route Utilisation Strategy predicts that unless

constrained by limited capacity, passenger numbers on the West Anglia Route will increase by 37% from 2004 to 2016, and by 42% to 2021. Without improvements, it is predicted that by 2021, 59% of London-Bound trains will be over crowded and 27% of passengers will be standing, many from as far as Bishop's Stortford and Stansted.

4.5.4.1 Growth of M11 Corridor

The East of England Plan allocates high levels of housing and employment to the region and this is forecast to result in high rates of growth in demand for rail services in the coming years, especially on the West Anglia route. Specifically, the M11 corridor has been targeted as a key area of future housing growth which, upon meeting the targets set in the East of England Plan, will bring about an increase the number of morning peak passenger trips by 3 – 3.5% every year until 2010 (Network Rail SBP, April 2008). This figure could be far greater if capacity enhancing measures are implemented which improve performance, reduce journey times and reduce overcrowding on the peak services.

A number of capacity enhancing schemes have been looked at, which will relieve some of the future pressures created in the M11 itself due to the anticipated economic and housing growth in the area. The DfT, in conjunction with the Highways Agency, has considered the introduction of hard-shoulder running and widening the motorway between junctions 6 and 8. However, this research has suggested that capacity enhancements on the M11 will not be required until at least 2021. The delivery of short term capacity improvements on the West Anglia route is therefore essential in the context of Delivering a Sustainable Transport System (DaSTS) as set out by the Government in November 2008, providing for future economic growth, helping to combat climate change and improving quality of life.

4.5.4.2 Employment

In addition to the increased commuter trips resulting from the significant housing growth in the region, significant employment growth is predicted for Cambridge, the Upper Lee Valley and Tottenham Hale. Both the Tottenham Hale and Upper Lee Valley areas are designated as Opportunity Areas in the London Plan, which could see an additional 15,000 jobs and 7000 homes by 2016. This is likely to result in increased demand for non-central passenger traffic and reverse flow commuting.

4.5.4.3 Olympics

The Broxbourne White Water Canoe Centre will host the Canoe/Kayak Slalom events during the 2012 Olympic Games. The venue is located within the Lee Valley Park, within walking distance from both Cheshunt and Waltham Cross railway stations. During the Games, up to 12,000 spectators will descend upon the White Water Canoe Centre, the majority of who will be encouraged to use the train. The venue is being marketed as having excellent public transport facilities, and it is widely documented enhancements will be made in relation to rail, bus, walking and cycling facilities.

Although Waltham Cross is the closest station to the Olympic site, Cheshunt has been earmarked as the preferred station as it provides a more pleasant and safer pedestrian route to the White Water Canoe Centre. The spectator entrance will be located to the north of the site, allowing the creation of a green pedestrian and cycle route to and from Cheshunt railway station. This is a more pleasant environment for pedestrians and cyclists than the route from

Waltham Cross station, where the footways are too narrow to provide an adequate facility.

Although the use of the White Water Canoe Centre will be intensified during the 2012 Olympics, it is envisaged that national and international events will be held at the centre post 2012. The development of this site will therefore create an additional demand for passenger services on the West Anglia route and the Olympic Delivery Authority are working with Network Rail on the development of facilities which will not only meet the needs of the Games but will also support the legacy and long term development of the region.

4.5.4.4 Expansion of Stansted Airport

Until recently, air passenger numbers have risen sharply at Stansted Airport, which has established its position as Britain's third largest Airport handling in the region of 22.3 million passengers per annum. The airport's owner, BAA, proposes to introduce a second runway at Stansted Airport, increasing passenger numbers to 35 million per annum, and increasing the number of annual flights from 241,000 to 264,000. Although the construction of a second runway has been delayed by a forthcoming Public Inquiry, BAA is actively pursuing the airport expansion which could increase the overall capacity to 68 million passengers by 2030.

In 2005, the Stansted Express carried 7000 passengers to and from the airport every day. An additional 13 weekly services were added to the route in January 2008, and passenger numbers have continued to increase in line with the additional capacity. Trains currently operate every 15 minutes between the airport and London Liverpool Street, a journey which takes approximately 46 minutes during the off peak, and slightly longer during the peak periods. If the proposed expansion does go ahead, the demand for the Stansted Express service will continue to increase (based upon projected figures submitted with the planning application). In conjunction with the proposed airport expansion, a Transport and Works Act Order has been submitted to enable the construction of a second airport rail tunnel and a new platform (platform 4) at the station to increase rail capacity at the airport. Although these improvements do not consider the existing capacity limitations on the West Anglia Mainline, the Secretary of State has announced that Network Rail should develop and bring forward proposals for the operation of 12-car trains between Stansted Airport and London, and the development of four-tracking from Tottenham Hale to south of Cheshunt.

4.5.4.5 Level Crossings

Level crossings are a major issue on the Lee Valley section, particularly to the south of Broxbourne. Level crossings cause significant delays to road traffic, causing congestion and in many instances have an adverse impact upon the reliability of local bus services. Due to the intensification of the railway, the level crossings can be closed for up to 20 minutes at any one time. Not only does this affect motorised road users, it also restricts the movement of cyclists and mobility impaired pedestrians who are unable to use the footbridges provided alongside the level crossing unless an access ramp has been provided.

In line with the proposed four-tracking and the running of more frequent trains along the West Anglia route, level crossings would undoubtedly be closed to vehicular traffic more frequently and for longer periods, exacerbating the problems for road users and the local environment.

Network Rail is actively pursuing the closure of level crossings, particularly those where a compromise on accessibility is possible. In some instances, this will involve the construction of an underpass or bridge, or improvements to the local road network in order to ensure that a suitable diversionary route is available. Traditionally, closures have tended only to be considered in terms of meeting individual objectives in relation to passenger growth and therefore do not consider the long term passenger and freight requirements of the West Anglia route network as a whole.

The closure of level crossings is also largely influenced by funding, as there are significant cost implications associated with the provision of a suitable alternative route. For instance, the closure of the level crossing at Tipton station and the replacement with an underpass is estimated at £22 million, whilst the closure of the Beddingham level crossing and replacement with a bridge is estimated to cost £19 million (TRL, 2008). There is no national funding programme for the closure of level crossings, and local highway authorities are largely unable to raise the level of finance required for the closure of the facility and the provision of a suitable alternative route.

4.5.4.6 Crossrail

In autumn 2008, Government approval for the Crossrail scheme was granted. Crossrail will run from Maidenhead and Heathrow in the west to Shenfield and Abbey Wood in the east, increasing London's public transport network capacity by 10%. The completion of Crossrail is scheduled for 2017, and will reduce the travelling time for cross-London journeys and will reduce crowding on London's transport network.

Crossrail will have a significant effect upon the capacity available into Liverpool Street station and will affect demand patterns on the WAML, a key consideration within Network Rail's Route Utilisation Strategy. This may result in an increase in the number of passengers interchanging at Liverpool Street than Tottenham Hale in order to achieve faster and more convenient journeys to the Docklands, West End and Heathrow Airport. Once Crossrail has been opened, there may be opportunity to revise the way that platforms are used by different service groups at Liverpool Street and to accommodate additional trains. Future strategies for the WAML will need to incorporate the possible changes at Liverpool Street brought about by Crossrail to ensure that capacity is preserved for other passenger and freight services alongside those planned to use the new Crossrail infrastructure.

The introduction of Crossrail will reduce some of the existing infrastructure between Stratford and Liverpool Street. This could present long term opportunities for further improvements to the rail network, including the ability to run trains through to Liverpool Street that currently terminate at Stratford station (subject to significant engineering works at Stratford).

4.5.5 Recent and Proposed Improvement Schemes: Strategic Context

A number of measures have been identified in the Greater Anglia Route Utilisation Strategy (RUS), aiming to improve the capacity and service provision on the route. The RUS contains a range of measures that will bring about these capacity enhancements in line with the requirements of those who fund the railway. The measures presented in the RUS represent those which offer value for money, and in terms of deliverability and affordability. The RUS covers the period to 2019 but also considers the period up to 2021 in line with the Regional Spatial Strategy, outlining a number of capacity enhancements

and associated measures to accommodate the increasing number of passengers on this route during peak periods.

The Government has pledged their commitment to providing a series of enhancements on the West Anglia Main Line (WAML) between London Liverpool Street and Stansted Airport. The Government expects demand for transport to continue to grow significantly within the East of England region despite the recent economic downturn. The Secretary of State for Transport recently announced that there remains a robust business case for a significant package of enhancements to be delivered between 2014 and 2019, aimed at addressing long-term passenger growth on the West Anglia route. The Department for Transport will be working closely with Network Rail to develop an output specification for delivering these enhancements. The DfT is suggesting that Network Rail use part of its CP4 (2009-14) funding settlement set aside for developing CP5 (2014-2019) schemes to bring forward the delivery of route enhancement schemes on the WAML.

A list of infrastructure enhancements that have the potential to add the most significant benefits to the route has already been drawn up and will be the subject of detailed development work by Network Rail during CP4. The list includes

- Grade separation of Coppermill Junction, south of Tottenham Hale, to segregate the routes to Stratford and to Liverpool Street;
- Four-tracking of the constrained stretch from Coppermill Junction through Tottenham Hale, plus significant alterations at Tottenham Hale station. This could accommodate six additional trains each hour, but as capacity is limited at Liverpool Street, four of these would terminate at Stratford, significantly improving access to the many local, regional and international rail services.
- Possible improvements at Cheshunt to facilitate improved service resilience;
- An additional track from Tottenham Hale to Northumberland Park to permit the reversal of Stratford Shuttle/London Overground trains from Stratford;
- Remodelling of the track layout at Broxbourne and the Hertford East branch junction, which is a key bottleneck;
- Line speed improvements to 100mph to be the 'ruling train speed' along the route;
- Removal of road and footpath crossings, with alternative crossings provided. Network Rail has confirmed that it wishes to close as many crossings as possible where compromise on access is achievable. This will improve performance on the West Anglia Main Line and is recommended as part of the early works for four-tracking the route.
- A second tunnel on the Stansted Airport branch and platform capacity improvements at the airport station;
- Signalling changes, to allow for extended hours of operation of services to Stansted Airport, without disruption to route maintenance requirements.

In the shorter term, it is proposed that 12-car trains are introduced on West Anglia outer-suburban services operating between Cambridge and Stansted Airport and London Liverpool Street. This will involve platform lengthening at some stations and will provide a 50% increase in capacity between Cambridge and London, which is deemed sufficient to meet demand up to about 2016. In addition, the trains between Cheshunt and Liverpool Street via Southbury will be extended to nine cars, with lengthening of platform three at Cheshunt.

Other capacity enhancing proposals include the introduction of a shuttle service operating between Cheshunt and Seven Sisters during peak hours. This will require the construction of a turnback facility at Seven Sisters, which will also serve to improve performance on the Southbury Loop. The shuttle service will permit the provision of four trains per hour at all stations on the Southbury Loop.

4.5.5.1 Rolling Stock Improvements

Network Rail has begun work on the necessary infrastructure improvements to enhance the operational capacity on the WAML. In parallel, additional rolling stock is due to enter service on the line by 2012 under the Government's plans to provide an additional 1300 carriages across the entire National Rail network, 188 of which will be introduced on routes operated by National Express East Anglia (NXEA). Some 120 of these carriages will be newly built, and will be mainly used on the Stansted Express and some commuter services from Cambridge. The 188 carriages represent a 17% increase in the NXEA fleet, and will provide an additional 11,000 seats into London Liverpool Street during the three hour morning peak.

4.5.5.2 Transport for London

Transport for London (TfL) has published its own long term rail strategy covering part of the West Anglia route. One of TfL's policy objectives is to provide a regular 'turn up and go' service of four trains per hour for passengers at all stations within the Greater London Authority area. Whilst TfL have yet to present sufficient demand projections and there is a lack of evidence contained within the current business case to actively support TfL's policy objective, this could be of future relevance to the stations in the lower Lee Valley between Waltham Cross and Angel Road. .

4.5.6 *Station Facilities*

Cheshunt, Waltham Cross and Theobalds Grove stations are managed by National Express East Anglia. The current facilities at each of the stations are summarised in ***Table 4.4***.

Table 4.4: Station Facilities – West Anglia Route (selected Stations)

Station Category*	**Cheshunt**	**Theobalds Grove**	**Waltham Cross**
	Important Feeder	**Medium Staffed**	**Small Staffed**
No. of platforms	3	2	2
Disabled access to Platforms	✓	×	✓ (northbound only)
Car Park No of spaces	185 (*operated by NCP*)	134 (*Managed by*	48 (*NCP*) *plus 45*

		Network Rail)	*Council-owned*
Disabled Spaces	5	3	1
10% Spare Utilisation (peak)	×	✓	✓
Charges	£10.00 peak, £3.00 off peak, £84.00 monthly, £860.00 annual	Free of charge	£2.00 off peak, £2.50 daily, £38.40 monthly, £400.00 annual
Lone Traveller Service	Sat £2.00 Sunday £1.00		Sat £2.00 Sunday £1.00
	✓	×	×
Cycle Parking	40 spaces	12 spaces	6 spaces
Taxi Rank	✓	×	✓ (Station Approach Road)
CCTV	✓	×	✓
Waiting Room	✓	×	×
Toilets	✓	×	×
Seated Waiting Area (platform)	✓	✓	✓
Ticket Office opening hours	Mon-Fri 06:15-19:45 Sat 06:15-19:45 Sun 08:15-15:40	Mon-Fri 06:15-17:45 Sat 07:15-14:00 Sun Closed	Mon-Fri 06:10-20:00 Sat 07:45-14:40 Sun 08:15-15:45
Self Service Ticket Machine	✓	✓	✓
Shops	✓	×	×
Refreshment Facilities	✓	✓	✓
ATM	✓	×	×
Customer Help Points	✓	×	×

All three stations participate in the PlusBus scheme, which enables rail passengers to purchase a ticket for one-day unlimited travel on all participating bus services within a predefined zone around the train station. PlusBus tickets must be purchased at the same time as the train ticket, and costs £1.90 for adults and £1.25 for children.

4.5.7 *Cheshunt Railway Station*

Cheshunt is a three platform station, with platforms 1 and 2 serving the main lines to and from the north. Platform 3 is a bay platform, which is only accessible from the Southbury Loop. With this existing arrangement, it is possible for trains to run to or from platform 3 at the same time that trains are running from platforms 1 and 2 on the Lee Valley line.

Cheshunt station is located about half a mile to the east of Cheshunt town centre. The River Lea is situated to the east of the railway line, with one of the tributaries running beneath the platform at Cheshunt station. The river and its tributaries run almost parallel along the eastern edge of the railway line,

restricting access to the station from the east. All vehicular traffic wishing to access Cheshunt station must proceed along Windmill Lane from the west.

Windmill Lane itself is a relatively narrow, busy road which runs east-west form the B176 to the River Lea Country Park. Windmill Lane also provides access to the Tesco Headquarters on Delamere Road, which is a short walk from the railway station. Windmill Lane experiences high level of congestion during the morning and afternoon peak periods, particularly where it approaches Cheshunt town centre. Windmill Lane terminates immediately to the east of the railway station, where it leads into a private car park for the Lee Valley Country Park. Access to and from the Country Park is constrained by the Windmill Lane level crossing, which is located immediately to the east of the station car park. Between the hours of 07:00 and 09:00, there are up to 45 trains passing through the level crossing, and the barriers have been observed to remain lowered for up to 15 minutes at any one time. Furthermore, although a footbridge has been provided for pedestrians over the level crossing, there is no ramped access to accommodate mobility impaired pedestrians and cyclists whilst the barriers are lowered.

Pedestrian access is provided to the north and southbound platforms directly from Windmill Lane, either side of the level crossing. There is also a footbridge within the station, providing access between the platforms. However, once again there is no ramped access to the footbridge and mobility impaired pedestrians have to cross the railway line at the Windmill Lane level crossing in order to reach the opposite platform.

4.5.7.1 Bus Services

Cheshunt station is served by the C1 bus route, which runs between Turnford and Cuffley during the weekday peak, and between Cheshunt and Cuffley during the weekday off-peak and on Saturday. Half-hourly services are provided to and from Cheshunt station during the peak periods, whilst an hourly service is provided during the weekday off-peak and on Saturday.

The bus set down and pick up point is located within the station car park, outside the pedestrian entrance to the platform. There are difficulties for buses turning around at the station due to space limitations.

4.5.7.2 Car Parking

The station car park is managed by National Car Parks Ltd (NCP), providing 185 public parking spaces for general usage in addition to 5 disabled parking spaces. The station car park is accessed directly from Windmill Lane, prior to (west of) the level crossing.

The station car park is subject to daily parking charges, as illustrated in Table 4.4. The station car park is also used as a through route for vehicular traffic wishing to access the Colemans showroom and warehouse, located to the south of the train station. Private parking facilities are provided for the Colemans site.

The demand for car parking at Cheshunt station is at a premium, and is reflected in the car park utilisation data collected for the Greater Anglia RUS in 2006. In total, 79 car parks were surveyed for the development of the RUS, of which 31 were found to have car park utilisation rates between 80% - 100%. Cheshunt station car park was identified as one of the most heavily used car parks in the Greater Anglia route area, having a utilisation rate of 89% (measured at the end of the am peak). Despite the high utilisation rates at the

station car park, signage to the car park from the surrounding network is relatively poor.

Due to the location of the station, there are few opportunities to enhance the parking provision at Cheshunt station. Network Rail has outlined a commitment to reduce the number of level crossings in England and Wales and would therefore not support proposals which would intensify the use of such. Any increase in parking provision would therefore need to be implemented on the western side of the railway line, where space is limited.

Cheshunt station car park and the Colemans warehouse located to the south have both been identified as potential housing development sites through the Strategic Housing Land Availability Assessment (SHLAA). Each of these sites are being considered for future housing, but are not expected to come forward until 2021-2025. The station car park has been identified for the possible provision of 40 homes, whilst the Colemans site has the development potential for 71 dwellings. It is noted that any development at each of these sites would need to maintain and improve parking provision for railway users, and there would be the opportunity to improve access to the station for motor vehicles, cyclists and pedestrians. Although this could provide an opportunity for the future enhancement of bus services to and from the station, short term interventions are required to reduce unsustainable levels of car dependency at the station.

4.5.7.3 'Kiss and Ride'

There has been a proliferation in the number of 'Kiss and Ride' journeys made at Cheshunt station, increasing the number of vehicular journeys along Windmill Lane to and from the station. This activity can cause a significant amount of congestion outside the station building itself and can compromise the safety of pedestrians and other road users. As there are no dedicated drop off facilities at the station, passengers tend to get dropped off as close to the station entrance as possible. This hinders the movement of traffic into the car park and can also obstruct the bus stop located outside the station entrance. The lack of bus routes to and from the station and isolated location of the railway station itself may both contribute to the proliferation of 'kiss and ride' activity.

Due to the demand for parking at the station, there is very little scope to provide a dedicated drop off area for train passengers. Similarly, the restricted width of Windmill Lane affords little opportunity to provide kerbside facilities. Whilst this is an issue which ultimately leads to congestion around the station, it is difficult to implement a solution without compromising the number of parking or taxi spaces, or which would involve the acquisition of private land In order to provided a dedicated drop-off area.

4.5.7.4 Cycle Parking

Parking is provided for 40 cycles at Cheshunt station, which is considerably more than at Waltham Cross and Theobalds Grove. However, this is insufficient and it is not uncommon for the cycle parking facilities to be over-utilised. As the station is not currently served by a comprehensive bus network, and the access road itself leading to the station can experience significant levels of congestion, cycling provides one of the most direct and reliable means of transport. This may explain the current level of demand for cycle parking despite the lack of on or off road cycle lanes to the station.

4.5.7.5 Taxi

A small taxi rank and booking office for a local taxi company (Station Cars) is located within the station car park, adjacent to the pedestrian entrance to the northbound platform. There are currently no dedicated private drop-off facilities outside the station. *Lone Traveller Scheme*

Cheshunt is one of 23 stations managed by National Express which has benefitted from the introduction of a Lone Traveller booking service. This has been introduced at selected stations whose car parks are managed by NCP, and is one measure which has been introduced to increase the security and safety of car parks across the network. Customer Service Assistants are employed to accompany motorists between the station and car park during hours of darkness. The Lone Traveller scheme is available on weekdays (excluding bank holidays) and must be pre-booked. The service is currently available from 17:30 until the last train.

4.5.7.6 HCC Schemes

Access to Cheshunt rail station has recently been improved through the provision of lay-bys on Windmill Lane to increase the prevailing capacity of the road.

HCC is also proposing to implement a Quality Bus Stop scheme at Cheshunt railway station. This will involve the upgrade of two bus stops within the station car park and will enable level-boarding and alighting. The proposed improvements will also see the introduction of an uncontrolled pedestrian crossing, improving access to the station building, and the installation of motorcycle parking facilities opposite the station entrance. This scheme is subject to approval.

4.5.7.7 Franchise Commitments

A series of improvements were implemented in late 2006 as part of the franchise commitment between 'one' and the Department for Transport. These improvements saw the extension of the existing bay platform so that it could accommodate 8-coach trains, allowing for enhanced capacity for peak services. Improvements also included the replacement of all station buildings and the provision of a new footbridge within the station, CCTV installation, disabled toilet, covered cycle stands and a heated, self-enclosed waiting area on both platforms.

4.5.7.8 Poor accessibility for mobility impaired pedestrians

As discussed above, the operation of the level crossing barriers and lack of ramped provisions for the footbridge present movement barriers for the mobility impaired.

Cheshunt has been earmarked as the preferred station for the White Water Canoe Centre, which will hold up to 12000 spectators during the Olympic Games. It is expected that a large number of spectators will arrive by train, leading to significant levels of congestion when an event is being held. The safe and efficient movement of passengers through the station and onto their destination is therefore essential during periods of intensified use, which in itself could be hindered by the lack of provision for mobility impaired passengers.

Passenger numbers are significantly higher at Cheshunt station than Waltham Cross and Theobalds Grove, which serves as an interchange for services to Cambridge and Stansted Airport (although Broxbourne and Bishops Stortford are the main interchange stations for Stansted Airport). It is therefore important

that passengers are able to move freely between different services, again stressing the importance for unhindered access around the station. Due to the accessibility issues, lack of taxi services, disabled parking and drop-off facilities at Waltham Cross and Theobalds Grove stations, it is important that alternative arrangements are available with minimum inconvenience to disabled passengers. Although accessibility is as important for all stations, the business case for providing unhindered access is likely to be stronger for those stations with higher passenger numbers and which serve a greater number of destinations. Due to the number of routes provided Cheshunt should therefore be regarded as a priority for improving disabled access, particularly in light of the future service provision associated with the proposed four-tracking and expansion of Stansted Airport.

Although disabled access is available to both the north and south bound platforms, movement is severely restricted by the Windmill Lane level crossing. The proposed four-tracking will exacerbate this problem, and will place further delays on road users waiting for a train to pass.

4.5.7.9 Severance

The geographic location of Cheshunt station is also a factor in the current travel patterns to and from the station. The railway line and the River Lea both run north-south, restricting the mobility of east-west traffic within the borough. Mobility is severely restricted from the east of the station, which increases the journey time to and from the station. Consequently, for many the car provides the only realistic mode of access to and from Cheshunt station.

Severance will be improved by the creation of safe, pleasant and accessible pedestrian links between the station and the White Water Canoe Centre, which is being implemented in preparation for the 2012 games.

There are no proposals to create a vehicular connection to the east. The population density is greatest on the west side of the station so there would be little demand and therefore limited justification. Likewise, a link road would intensify the use of the level crossing unless a car park was provided on the east side of the railway line.

4.5.7.10 Integration with other modes of transport

Transport options to and from the station are currently limited, and there is no dedicated walking or cycling routes between the town centre and railway station. Likewise, Cheshunt station is served by a single bus route which operates every hour, with increased frequencies during the morning and afternoon peak periods. This lack of alternative transport provision coupled with the availability of a large car park may greatly influence how and when journeys to the station are made.

4.5.7.11 Congestion on approach to station

Windmill Lane is a relatively narrow road which is heavily used by traffic associated with the railway station, Tesco headquarters and the country park on the eastern side of the level crossing. The problem is exacerbated due to the regular closure of the level crossing, which can lead to significant queues along Windmill Lane. A recent improvement scheme has been implemented involving the creation of lay-bys is intended to increase the capacity of the road. There is limited scope for further capacity enhancements due to the level of frontage ownership along Windmill Lane, which restricts the opportunity for further carriageway widening. Likewise, the lack of alternative routes will add to

the pressures on Windmill Lane. Some of this may be alleviated through the development of a bus, cycling and walking network between the train station and key sites.

4.5.8 Waltham Cross Railway Station

Waltham Cross railway station is managed by National Express East Anglia. The station is situated on the edge of the town centre, and is within easy walking distance of the bus station and shopping centre, which are located approximately 300m to the west of the train station. Waltham Cross is a simple two-platform station operating on a double track line. The northbound platform is able to accommodate nine coaches, whilst the southbound platform can accommodate eight-coach trains.

Pedestrians wishing to access the southbound platform at Waltham Cross must use the station footbridge. As there is currently no ramped provision, mobility impaired passengers have no suitable means of access to southbound services.

Waltham Cross bus and rail stations are located a short distance apart, and the pedestrian route between the two is via the Monarchs Way subway. The subway is signed as a shared pedestrian/cycle route and despite being relatively well maintained, public concerns over personal safety continue to exist. There also appears to be a distinct lack of signage between the bus and rail station. Pedestrian access to the rail station is also provided directly from the A121, via a series of steps located on either side of the carriageway.

4.5.8.1 Bus Services

The proximity of the bus and rail stations in Waltham Cross enables passengers to interchange to a range of destinations. A number of local and regional routes are available from Waltham Cross bus station, the frequency of which varies between the different service providers and the different routes. Destinations such as Harlow, Enfield, Hertford and London can be accessed directly from Waltham Cross bus station.

Although there are no timetabled services calling at Waltham Cross rail station, there is a bus stop on Station Approach, approximately 50m from the pedestrian entrance. This stop currently accommodates a shuttle service between the rail station and the Park Plaza development to the northwest of Waltham Cross. This service was funded as part of a planning condition in association with the Park Plaza development, providing a service commitment for five years. After this period, the service is likely to be withdrawn if it is not considered to be commercially viable. If there is sufficient demand for this service after five years, Local Authority funding may be considered to enable the service to continue as a regular, timetabled service.

4.5.8.2 Car Parking

There are currently two car parks at Waltham Cross railway station, one of which is managed by NCP and the other which is a council-owned facility. The NCP car park provides 48 spaces, whilst the council-owned car park, which opened in August 2008, provides an additional 45 parking spaces. The council-owned facility was partly funded by Park Plaza planning gain monies, at an approximate cost of £165,000. Parking charges apply between the hours of 06:00 and 18:30 Monday to Friday, and 06:00 to 12:00 noon on Saturday. Sundays and Bank Holidays are free.

Prior to the construction of the council parking facility, the displacement of commuter vehicles into the adjacent Four Swannes residential area prompted requests for the introduction of a Controlled Parking Zone (CPZ). Proposals for a CPZ were drawn up by the Council but were withdrawn after failing to generate the necessary level of public support. It is envisaged that the provision of an additional 45 spaces would alleviate some of the problems associated with commuter parking.

There are currently no dedicated passenger drop-off facilities outside Waltham Cross station. An on-street parking bay is provided beneath the A121 underpass, enabling motorists to park for a maximum period of 20 minutes free of charge, which could be used for this purpose. This bay can accommodate approximately 2 vehicles.

Until recently, Waltham Cross station was served by a small car park with capacity for 48 vehicles. However, despite the proximity of the bus station and the provision of a dedicated walking and cycling route from the town centre, there was a significant demand for car parking which often led to the displacement of commuter vehicles onto adjacent residential streets. This has led to the provision of an additional 45 parking spaces, enabled through developer contributions, which was opened in 2008. Planning permission has also been secured for the creation of an additional 40 spaces at Waltham Cross. This second phase expansion will require the use of an adjacent playing field and therefore the National Playing Fields Association Covenant which is currently in place will need to be resolved before this further expansion can commence. The estimated cost of this work is in the region of £95,000.

Despite the additional parking provision, there are still a number of issues relating to car parking at Waltham Cross station, namely;

- Existing spaces are poorly maintained;
- Lack of signage for each of the car parks;
- Variation in pricing between NCP and Council-owned car parks;
- Displacement of Commuter parking onto nearby residential streets.

4.5.8.3 Obstructive Parking

In addition to the commuter parking problem which has been an issue for a number of the nearby residential streets, the misuse of the parking facilities on Station Approach, beneath the A121, has led to concerns over access and road safety. The existing 20-minute parking bay, which is currently free to use, provides short-stay parking for just a couple of vehicles. However, this is often insufficient for the level of demand and vehicles overspill into the adjacent carriageway.

4.5.8.4 Taxi

A taxi rank is provided on Station Approach, opposite the bus stop for the Park Plaza shuttle bus. This rank can accommodate up to 5 vehicles, although it is not clearly signed and appeared to be under-used during recent site visits.

The existing taxi rank appears to be under-used despite it being conveniently located just a short distance from the entrance to the station. The rank can accommodate approximately 4 vehicles parked within a lay-by parallel to the carriageway. The demand for taxi services may be lower from Waltham Cross station due to the proximity of the bus route and the range of destinations

available on a frequent and regular basis. However, it is important to ensure that appropriate taxi facilities are provided, particularly for less able bodied pedestrians, and for passengers with heavy luggage in the advent of the expansion of services to Stansted Airport.

4.5.8.5 Cycle Parking

Covered cycle stands are provided on the northbound platform, providing storage for up to 6 cycles. However, despite the relatively low provision in comparison to Cheshunt station, the cycle stands at Waltham Cross do not appear to be very well used. This could be due to a number of factors including accessibility and security.

Cycle stands were recently installed at Waltham Cross station. However, despite these improvements, the stands are under-utilised with concerns over security and inappropriate design being possible reasons for the low uptake.

4.5.8.6 Access for All

Waltham Cross has previously benefitted from the Access for All programme. In May 2008, tactile paving was installed on stairwells and from the disabled parking bays to the station building as part of an improvement scheme promoted by 'one' railway. These improvements received £3,867 of DfT funding. Induction loops were also installed at the station in June 2007, again as part of a scheme identified through the Access for All programme.

Waltham Cross station has also been identified for future enhancements through the Access for All programme, and is one of 18 stations to during the 2009/10 financial year. The station is also included in the current round of the Access for All programme and a list of possible enhancement schemes have been drawn up which are intended to improve the existing facilities and accessibility to the station. Broxbourne Borough Council has identified a possible £100,000 to support enhancements at Waltham Cross station through the Access for All.

4.5.8.7 Developer Contributions

A contribution was made for the provision of a shuttle bus service between the Park Plaza development and Waltham Cross station. The shuttle service is provided from Station Approach, opposite the entrance to Waltham Cross train station. This service was introduced in 2008 and is now fully operational. However, as developer contributions are normally limited to five years it is likely that this service will be withdrawn if deemed not to be commercially viable, unless local authority funding is made available.

The Park plaza developer contributions also included £225,000 for station improvements, £165,000 of which was allocated for the creation of an additional 45 parking spaces at Waltham Cross station in 2008. This pay and display car park is managed by the local authority and will help to relieve some of the pressures for parking caused by rail passengers and nearby industrial premises.

CCTV has recently been installed at Waltham Cross railway station car park.

4.5.8.8 Accessibility for Mobility Impaired Passengers

Accessibility is a concern at Waltham Cross station as there is currently no step-free access to the southbound platform and access to the booking hall does not comply with DDA requirements. Similarly, the steep gradient between

the car park and station building poses further access problems for disabled passengers.

Part 3 of the DDA places an obligation on operators to take reasonable steps to overcome barriers to access, such as those preventing disabled passengers from accessing trains. However, due to existing physical constraints, it is not always possible to provide direct access to opposite platforms, and it is not practical to provide lifts at every station, particularly where stations are located in close proximity or at stations with much lower passenger numbers. However, all passenger train and station operators are encouraged to comply with the standards contained in the *Accessible Train and Station Design for Disabled people: A Code of Practice*, which was published by the DfT in July 2008 to ensure best practice design in all aspects of service provision at stations.

A number of minor improvement schemes have recently been implemented at Waltham Cross, with the aim of improving accessibility between the station car park and the platform. This has included the installation of tactile paving on the stairwells within the station and at the entrance to the station itself from the car park. As there are apparent barriers to providing disabled access to the southbound platform, efforts should be made to ensure that the northbound platform is fully accessible and in accordance with best practice design. Measures could include making the gradient from the car park to the station building less steep.

4.5.8.9 Access between railway station and town centre/bus station

Despite being located just a short distance from the bus station and town centre, the pedestrian route to and from Waltham Cross railway station is severed by a busy dual carriageway. The pedestrian route between the bus and rail stations uses the Monarchs Way subway, which is currently shared by pedestrians and cyclists.

4.5.8.10 Integration with Bus Services

The location of the bus and rail stations on the edge of the town centre lends itself to the provision of an integrated transport system, which serves a number of key local and regional destinations. The possible relocation of the bus layover outside Waltham Cross train station has been discussed in more detail within the bus note, and requires further discussions between the local highway authorities and bus operators to assess the viability of such.

4.5.9 Theobalds Grove

Theobalds Grove rail station is operated by National Express East Anglia. It is a two-platform station located to the south of Cheshunt town centre. The train station is located of the B176 (High Street), and is accessed via a mini roundabout on the south side of the station. The station car park is situated in front of the station and is accessed from the mini-roundabout. The access road leading into the car park also provides the sole means of access to a number of small industrial premises located beneath the railway line.

There is currently no step-free access between the platforms, and the ticket office does not comply with DDA requirements. The level of services and facilities provided at Theobalds Grove is very poor, and the station itself appears to be neglected and poorly maintained. There are no public toilets, waiting rooms, cycle parking facilities or customer help points at the station which would create a more pleasant passenger environment. There is also no CCTV coverage at the station at present.

Passenger numbers at Theobalds Grove are much lower than Cheshunt and Waltham Cross, largely due to the lack of service provision and longer journey times into central London. The station therefore appears to have less potential in terms of enhanced service provision than the other two stations and any investment gains are considered to be considerably lower at Theobalds Grove.

In addition to the lesser service provision, Theobalds Grove does not currently offer a pleasant passenger experience and has very few facilities which are poorly maintained. The access road to the car park is often obstructed by traffic associated with nearby industrial premises, and the car park itself offers no sense of regularity or security and has no suitable pedestrian route into the station. This is reflected in the usage of the car park, which is significantly under-used on a daily basis.

It is considered that Cheshunt and Waltham Cross offer the most potential in terms of rail offer and that investment would be better placed for improving the access and facilities at these two stations than at Theobalds Grove, where station usage is much lower and passenger numbers continue to fall. However, there is a requirement to provide a basic standard of passenger facilities at Theobalds Grove for those passengers choosing to use this station, which will benefit from small, targeted improvement schemes.

It has been suggested that Network Rail have recognised the development potential of Theobalds Grove car park, which may be subject to a future planning application which will see the transformation of this area. The anticipated traffic movements and modal split of journeys associated with any new development should be given careful consideration to ensure that demand can be accommodated alongside the existing and future demand for commuter parking. Depending upon the nature of development, contributions should be sought in upgrading the local environment, which has suffered from prolonged neglect.

4.5.9.1 Bus Services

Theobalds Grove is served by a number of bus routes, with services stopping on High Street a short walk from the station entrance. A number of destinations including Harlow, Hertford, Waltham Cross and Cuffley are accessible on direct routes form Theobalds Grove. The station is part of the PlusBus initiative, enabling bus tickets to be purchased at a discounted rate when bought in conjunction with a valid train ticket.

4.5.9.2 Car Park

There is a large car park opposite the train station, providing 134 general plus 3 disabled parking spaces. The car park is now managed by National Car Parks (NCP) on behalf of Network Rail, following the expiration of Broxbourne Borough Council's 20 year lease of the facility in 2008. Although there is no charge for the use of this car park, the facility is often under-utilised. Observations suggest that there is a greater degree of parking on the station access road as opposed to the car park itself. However, it is unclear as to whether these vehicles are associated with commuters or the adjacent industrial units.

4.5.9.3 Taxi

There are currently no taxi facilities at Theobalds Grove station.

4.5.9.4 Access for All

Theobalds Grove has been announced as one of 18 stations to benefit during the 2009/10 financial year.

Theobalds Grove was also included in a scheme by One Railway (now National Express East Anglia) to install induction loops at 21 stations. This was completed in June 2007.

4.5.9.5 Developer Contributions

Cycle racks have been paid for from Park Plaza planning gain monies and have recently been implemented.

4.6 Summary of Problems

Table 4.5 summarises the rail problems identified through consultation and investigation:

Table 4.5: List of Rail Problems

RAP1	Substandard disabled access provision at rail stations
RAP2	Inadequate facilities and parking at Cheshunt and Waltham Cross rail stations
RAP3	Expansion of rail station car parks is restricted by land ownership constraints
RAP4	Poor integration of bus and rail services
RAP5	Train services and facilities at Theobalds Grove rail station are substandard
RAP6	Fare system complicated and train fares are expensive
RAP7	Overcrowding of train services, particularly during peak periods
RAP8	Parking at Cheshunt and Waltham Cross rail stations is expensive
RAP9	Poor range of train services

4.7 Urban Transport Plan Options

This section provides an overview of the existing issues and opportunities which can be delivered through the UTP programme. Whilst this section looks at both the strategic and local issues, attention is directed to specific schemes which can be delivered in Cheshunt and Waltham Cross. Those measures which represent priority measures are summarised in section 4.8.3.

A number of improvement schemes have recently been implemented at Cheshunt and Waltham Cross railway stations in order to address issues such as a lack of parking facilities and improved security. Despite these enhancements, there are a number of outstanding issues at the three stations within the study area which, if addressed, could encourage further use of rail services. A discussion of possible options and solutions is presented below.

4.7.1 Cheshunt Rail Station

Cheshunt station has been improved over the recent past and opportunities for further improvements and service provision is constrained by lack of suitable funding streams and a number of constraints.

Cheshunt station is the busiest of the three railway stations in the UTP area and provides a more efficient and varied service than Waltham Cross and Theobalds Grove stations. The maintenance and enhancement of rail services, and continued enhancement of facilities at the station have an important role in the future transport provision within the area.

A number of the schemes need to be progressed for Cheshunt station including:-

- Provision of longer platforms to accommodate longer trains
- Improve interchange with bus services
- Provide additional secure cycle parking facilities

4.7.1.1 Accessibility for mobility impaired passengers

An access ramp has been provided to the southbound platform from Windmill Lane. However, access to the southbound platform from Cheshunt involves use of the level crossing which can be closed for lengthy periods. The replacement of the existing footbridge with a facility suitable for disabled access would improve access to the station for the mobility impaired. However, provision of a ramped bridge would involve the acquisition of privately owned land and would represent a reduced level of facility for other users, including those wishing to access the Lee Valley Park.

4.7.1.2 Car parking

Rail use could be made more attractive through provision of a larger car park and lower parking charges. Decked car parking would maximise the use of available space and would not require additional land acquisition. However, decked parking is extremely expensive and would need to be supported by much higher parking charges which in itself could reduce the overall demand for parking at the station.

Cheshunt station is not easily accessible by car and increased car trips could result in increased congestion on Windmill Lane and in Cheshunt town centre. Care also needs to be taken to ensure that the approach to parking at the station does not lead to displacement of vehicles into nearby residential streets. Given the situation at Cheshunt station, the best approach may be to encourage park and ride at other station in the Broxbourne area, including Broxbourne station where parking provision is being expanded.

4.7.1.3 Integration with other modes of transport

The expansion of the bus routes serving Cheshunt station is important for reducing future demand for commuter parking at the station and increasing accessibility to the station. However, increasing frequency of bus services to provide an efficient, reliable and accessible service to Cheshunt station could involve a significant and on-going cost. In addition, use of normal buses on the route will only be achieved if a suitable location can be secured for a bus turning facility at the station.

There appears to be significant scope for improving access to the station by cycle. Improved signing and provision of cycle measures on routes to the station will encourage cycling, and these could be linked to and promoted to the adjacent employment area on Delamare Road, including Tesco offices.

4.7.1.4 Cycle parking

Although there is parking for 40 cycles at the station, this is insufficient. There is no immediate solution to address this, however it is important that use of cycling as a mode of access to the station is strongly encouraged.

4.7.2 Waltham Cross Rail Station

Waltham Cross rail station is conveniently located on the edge of the town centre and future schemes should build upon maximising accessibility to the station and associated facilities. Future initiatives should also focus upon the development of passenger and interchange facilities.

The deliverability of improvement schemes is constrained by the availability of funding, and although funding streams do exist for the improvement of passenger facilities competition is fierce. Waltham Cross rail station has enjoyed some degree of recent success under the National Station Improvement Programme (NSIP) and a number of small improvements have been carried out at the station. Further improvements are currently being considered for Waltham Cross rail station as part of the NSIP, which include improvements to station buildings to provide new passenger waiting facilities, accessibility to and within the station, improved security, improved cycle parking and improved pedestrian access to the car park owned by Network Rail. These improvements are being taken forward to GRIP Stage 4 (detailed design) and further details regarding cost, feasibility and funding allocations should be announced in autumn 2009.

The delivery of rail improvement schemes is dependant not only upon the availability of funding from the rail sector but also upon the collaboration with the HCC and BBC as key partners.

Although Waltham Cross bus station is within easy walking distance of the rail station, there is considerable scope to improve bus interchange and this is discussed in the bus section of this appendix.

4.7.2.1 Accessibility for mobility impaired passengers

The provision of a footbridge that has either a ramped access or lift on either side of the bridge or the creation of a direct pedestrian access to the southbound platform would enable mobility impaired passengers to access southbound trains.

A ramped access, either directly from the A121 or to the existing footbridge within the station, would involve lengthy ramps to ensure that the gradient was no steeper than 1:20. A ramp from the A121 to the southbound platform would be unsuitable as there is no convenient drop-off point for disabled passengers on the A121. A ramped footbridge could be achieved within the station, but is likely to require localised platform widening with potential land acquisition outside the station boundary.

A lift within the station would satisfy disabled access requirements to the southbound platform. However, the provision of a lift facility will have considerable construction and maintenance costs and would be susceptible to vandalism. Nevertheless, this appears to be the most realistic option for providing access to the southbound platform for the mobility impaired.

4.7.2.2 Parking

The Borough Council are planning to expand the car park they have recently provided at the station. This will improve the attractiveness of the station as a

park and ride facility and assist in reducing commuter parking in nearby residential streets. Better signage is required for the car parks serving the station.

4.7.2.3 Access between railway station and town centre/bus station

The provision of improvements to the pedestrian route between the rail station and Waltham Cross town centre and bus station is a priority. This is discussed in the section of this appendix covering Walking and Cycling.

4.7.2.4 Bus Rail Interchange

A scheme is proposed in the Bus section of this to encourage provision of bus services to terminate at Waltham Cross Station. This could include additional works such as provision of a lager bus waiting area. Changes in bus services will be subject to the agreement of all bus operators. In addition, the creation of an expanded bus waiting area could require the acquisition of land and this could have implications on deliverability of this option.

Further feasibility work is required to assess the operational requirements, potential land ownership issues, traffic flows and road safety. This should include scope to increase the size of the existing short stay parking bay without compromising access and visibility. Detailed design will need to take into account modifications to the station buildings themselves in order to produce a better gateway to Waltham Cross via the rail station.

4.7.2.5 Taxi

Signage of the taxi rank is very poor, and the lay-by would benefit from yellow bay markings and associated text. The bay itself would be more conveniently located on the same side as the station building so that passengers did not have to cross Station Approach to access the taxi services. There could be some benefit in relocating the taxi rank to the area currently used for 20-minute parking, extending the bay southwards towards the station. However, this could involve localised carriageway widening to ensure that two-way traffic is maintained.

If the taxi rank is to be retained in its existing location, it is important to ensure that there is a clear, unhindered pedestrian route to and from the station building and that there is a suitable waiting area for pedestrians. The provision of dropped kerbs and tactile paving should be considered as a minimum level of provision.

4.7.2.6 Cycling

Cycle parking facilities should be improved as part of a wider station enhancement scheme. Cycle stands should be conveniently located for cyclists arriving at the station and ideally be covered and monitored by CCTV. Sufficient spaces should be provided to meet targets for cycle use to the station.

4.7.3 Theobalds Grove Rail Station

Theobalds Grove rail station has suffered from a period of relative neglect and, as a consequence, offers a sub-standard level of passenger services and facilities. Future funding opportunities are somewhat limited, although there may be scope to bring about small-scale improvements through the DfT's Access for All (Small Schemes) funding. A number of potential improvement measures have been identified for Theobalds Grove, focussing upon improved passenger facilities, security, accessibility and provision and quality of information. Potential schemes include:-

- Provide lifts to platforms
- Improve station buildings and passenger waiting areas
- Provide CCTV coverage of the station and cycle storage
- Improve customer real time information

These measures may not be delivered until the longer term. However, short term measures could be delivered as part of a wider rail station Masterplan, including improved pedestrian links to station, covered cycle facilities, taxi rank, improved parking facilities and measures to discourage anti-social behaviour.

4.8 Delivery

Delivery of UTP schemes is categorised into short term (0-2 years), medium term (3-5 years) and long term (greater than 5 years).

4.8.1 Assessment of delivery years

The determination of whether a proposed rail UTP scheme is suitable for short, medium or long term delivery has been considered through an assessment framework using a range of assessment criteria (see Section 7 of this Appendix).. Although schemes have been ranked in terms of anticipated outcomes and contribution to key LTP targets, programming is heavily dependent on feasibility. This relates to:

- scheme cost/affordability;
- availability of funding;
- contribution to a package of schemes;
- linkage with development
- agreement between delivery partners (where more than one agency is responsible for funding).

Schemes with lower risk factors were deemed as being feasible for short term delivery, whilst those with higher risk factors were identified for medium and long term delivery. Nevertheless, where possible, priority would be given to those schemes that produce the greatest benefits in relation to cost.

4.8.2 Funding opportunities

Funding for infrastructure improvements within stations, for example access arrangements to platforms, ticketing machines and other improvements as identified within the NSIP will be by National Express East Anglia and possibly by Network Rail. Improvements to infrastructure improvements on the track as well as major network improvements such as platform extensions are most likely to be funded by Network Rail. Such improvements are generally not likely unless there is a business case for the improvements to be made.

From time to time, developer contributions may be made to bring about station and network improvements. However, because rail stations generally serve a much larger area than, say highway junctions and bus services, it is often difficult to identify if the delivery of a particular development would necessitate station/network improvements. In most cases, such funding could only be required from large development proposals.

Improvements to transport facilities on the station forecourt, such as provision of taxi ranks, bus stops and pedestrian/cyclist facilities, will most likely be funded through LTP allocations and/or by Broxbourne Borough. Developer contributions through S106 agreements can also be sought for these types of measures as part of contributions to sustainable transport measures across the area.

4.8.3 *Delivery programme*

Having investigated the priority ranking, and the feasibility and funding opportunities for rail schemes, ***Table 4.6*** presents the list of UTP rail measures categorised into delivery periods:

Table 4.6: Rail Schemes for Short, Medium and Longer Term Delivery

Scheme Reference	Scheme Description
Proposed Short Term Schemes	
RA01	Waltham Cross Rail Station - Implement Phase 2 of BBC Car Park Expansion scheme
RA16	Theobalds Grove Rail Station - Environmental improvements to Theobalds Grove rail station
Proposed Medium Term Schemes	
RA03	Waltham Cross Rail Station - Provide lifts for access to southbound platform*
RA04	Waltham Cross Rail Station - Provide new station building with level access*
RA05	Waltham Cross Rail Station - Remodel station frontage and provide drop off facility*
RA06	Waltham Cross Rail Station - Provide upgraded passenger waiting areas with improved seating*
RA07	Waltham Cross Rail Station - Improve CCTV coverage within station, to include monitoring of cycle parking facilities*
RA08	Waltham Cross Rail Station - Improve customer real time information
RA09	Waltham Cross Rail Station - Provide improved cycle storage facilities*
RA10	Cheshunt Rail Station - Provision of longer platforms to accommodate longer trains
RA14	TEO Theobalds Grove Rail Station - Provide CCTV coverage of the station and cycle storage
RA15	TEO Theobalds Grove Rail Station - Improve customer real time information
**schemes to be considered through the Access for All bid, subject to final prioritisation through the Access for All process and rail industry, DfT and local government funding*	
Long term schemes	
RA02	WLC Waltham Cross Rail Station - Improve internal pedestrian link between Network Rail car park and station building

RA12	TEO Theobalds Grove Rail Station - Provide lifts to platforms
RA13	TEO Theobalds Grove Rail Station - Improve station building and passenger waiting areas

AECOM

Smarter Choices

5 Smarter Choices

5.1 Introduction to Smarter Choices

Smarter choices are techniques for influencing people's travel behaviour towards more sustainable options such as encouraging school, workplace and individualised travel planning. They also seek to improve public transport and marketing services such as travel awareness campaigns, setting up websites or car share schemes, supporting car clubs and encouraging teleworking. This section discusses the current and potential role of Smarter Choices in Cheshunt and Waltham Cross in the context of Hertfordshire County Council's relevant policy and strategy documents. Existing Smarter Choices initiatives are reviewed and additional measures which could form a part of the UTP are considered.

5.2 Background to Smarter Choices in Cheshunt and Waltham Cross

5.2.1 Overview of current Smarter Choices schemes in Cheshunt and Waltham Cross

According to the Cheshunt and Waltham Cross Urban Transport Plan Draft Data Report (2007). There are four Secondary Schools, eighteen Primary Schools and three other schools in the area. Currently 25% of these have operational School Travel Plans.

Further, there are four large employers within the area who currently have business travel plans.

Although significant progress has been made in promoting smarter choices through Travel Planning techniques in the area, there is clearly potential for further expansion of Smarter Choices measures within the area for schools, businesses and residents.

5.2.2 Travel Characteristics

The demography of the area, the local land use characteristics and the transport system contribute to the pattern of trip making and use of transport modes in the area. Information on trip movements has been investigated by HCC (Draft Data Report 2007) and by the Borough of Broxbourne (Broxbourne Sustainable Transport Study).

The HCC Cheshunt and Waltham Cross UTP Draft Data Report, using census information, indicates that there were about 18,700 employed residents in Cheshunt in 2001. Over 30 percent of these (6,000 residents) lived and worked within the town while almost 70% (12,700 residents) commuted to workplace locations outside the town.

Well over half of those out-commuting and around 38% of employed residents (7,300) commuted to Greater London. Other popular destinations include; elsewhere in the borough of Broxbourne (1,900 residents), East Herts (1,000 residents) and Essex (870 residents).

As well as journey to work trips from residents, there is significant commuting into the area from other areas. The 2001 census indicated that 12,570 people

work in Cheshunt with 6,650 (52%) travelling from outside the town, which is a similar number to those commuting out. The key origins of in commuters to the town were from elsewhere in Broxbourne (over 1,700 workers), Greater London (just under 1,700 workers) and Essex (1,100 workers).

In Waltham Cross there were around 3,000 employed residents. Just over 25% of these (800 residents) lived and worked within the town, meaning around 2,200 workers commuted to external locations outside town. 46% of employed residents (1,400) commuted to Greater London. Destinations are similar to Cheshunt above with 360 residents commuting to elsewhere in Broxbourne, 190 residents to Essex and 120 residents to East Herts.

Journey to work trip patterns are therefore similar in Cheshunt and Waltham Cross. The significance of out commuting to the London area is very pronounced. The majority of these movements are to locations broadly in the A10 corridor, including Enfield, Haringey and Islington as well as central London (City of London and Westminster).

The mode of journey to work differs significantly between Cheshunt and Waltham Cross. ***Table 5.1*** shows the mode split for those commuting out of Cheshunt and Waltham Cross. For Cheshunt, this indicates that 71% commute out by car with a further 17% commuting out by train. Another 3% commute by bus. For Waltham Cross, 63% of workers commute outwards by car and 14% by train. Bus usage is higher at 11% together with walking trips at 3%. The high use of bus and walk in Waltham Cross may result from the lower level of car ownership in the area, more compact nature of the area (with a range of job opportunities close to residential areas), higher level of accessibility by bus to Enfield.

Table 5.1 Mode Split for Out Commuting (Source: Cheshunt and Waltham Cross Urban Transport Plan Draft Data Report 2007)

	% Out Commuting	
Mode	**Cheshunt**	**Waltham Cross**
Bus	3.14	10.75
Train	16.74	13.79
Car/passenger	71.15	62.93
Walk	2.25	3.13
Cycle	1.54	2.15
Other*	5.18	7.25
Total	100	100

*includes underground, motorcycles and taxi

Table 5.2 shows that in-commuters to Cheshunt are even more car reliant, with over 85% of in commuters using this mode. 4% travel in by bus and 3% by train. The same pattern is apparent for Waltham Cross where car usage is higher for in-commuters than for out-commuters, at 78%. However, Waltham Cross does have around 11% of workers travelling into the area by bus, although only 2% travel in by train.

Table 5.2 Mode Split for In-Commuting (Source: Cheshunt and Waltham Cross Urban Transport Plan Draft Data Report 2007)

	% In Commuting	
Mode	**Cheshunt**	**Waltham Cross**
Bus	4.24	10.99
Train	3.10	2.28
Car/passenger	85.47	77.55
Walk	3.52	4.49
Cycle	1.17	1.97
Other*	2.50	2.73
Total	100	100

*includes underground, motorcycles and taxi

Table 5.3 shows the mode split of local work journeys for those living and working in Cheshunt and Waltham Cross. For Cheshunt, over 16% walk to work but only 1.5% use the bus. Cycle use is also minimal at 1.5% and 60% of workers still travel relatively short distances by car. For Waltham Cross, just over a quarter walk to work and 1.5% use the bus. Cycle use is around 3% and car use within the town is 34%.

Table 5.3 Mode Split for Local Journeys (Source: Cheshunt and Waltham Cross Urban Transport Plan Draft Data Report 2007)

	% Living & Working in Town	
Mode	**Cheshunt**	**Waltham Cross**
Bus	1.50	1.52
Train	1.63	2.90
Car/passenger	50.99	34.09
Walk	16.51	26.77
Cycle	1.51	2.78
Other (inc home workers)	27.85	31.94
Total	100	100

The higher use of sustainable modes of travel within Waltham Cross for both in-commuters and out-commuters demonstrates the potential for Smarter Choice measures to build on the current position in Waltham cross and to influence trip making and mode choice so that sustainable modes play a much more prominent role in the Cheshunt area.

Table 5.4 on the following page shows the distance travelled to work by residents of Broxboune district (source 2001 census) and the mode of travel used to reach the workplace by distance segment. This demonstrates that the vast majority of journeys to work are under 30km with 29% journeys under 5km. 16% of commutes to work are between 20 and 30km. Train is the predominant mode used to travel this distance with 51% of the mode share.

Table 5.4 Mode split of trips to work for Broxbourne per distance travelled (Source: FM analysis of 2001 Census data)

	% age of Total trips to Work	Under-ground, metro, light rail, tram (%)	Train (%)	Bus, coach (%)	Motor cycle, scooter or moped (%)	Driving a car or van (%)	Passenger in a car or van (%)	Taxi or minicab (%)	Cycle (%)	On Foot (%)	Other (%)
Less than 2km	16	0	1	2	1	50	7	1	4	36	0
2km to less than 5km	13	0	1	7	1	73	10	1	3	4	0
5km to less than 10km	19	0	3	5	2	81	7	0	1	1	0
10km to less than 20km	17	1	8	2	2	81	4	0	0	1	0
20km to less than 30km	16	8	51	1	3	36	1	0	0	1	0
30km to less than 40km	2	5	22	1	2	66	2	0	1	1	0
40km to less than 60km	1	3	9	1	1	84	2	0	1	1	0
60km and over	1	1	6	2	1	82	3	0	1	4	1
Work at or from home	8										
Other	7	2	7	1	1	71	6	10	0	1	2

In addition it also shows that 16% of trips are under 2km. Of these trips 36 % and 4% are undertaken by walking or by cycle respectively. However 50% of these short distance trips are undertaken by car or van. Many of these shorter trips have the potential to be undertaken by walk, cycle or bus.

Another key contributor to trip making in the area is the journey to school. Information on mode of journey to school is the 2006 School Census and Hands Up survey. Results are shown in ***Table 5.5***. This illustrates that walk is the largest single mode but that car is not far behind, particularly for trips to primary schools.

Table 5.5 - Percentage Mode Share for Schools in Cheshunt (Source: Cheshunt and Waltham Cross Urban Transport Plan Draft Data Report 2007)

	Primary Schools		Secondary Schools	
2006 Average	School Census	Hands Up Survey	School Census	Hands Up Survey
% by car	41.18	42.89	31.49	32.15
% by car share	2.56	3.44	4.52	11.31
% by bus	0.88	0.69	9.21	17.29
% by train	0.06	0.20	0.17	2.22
% walk	54.65	46.29	51.31	27.72
% cycle	0.55	0.25	3.29	2.44
Split	n/a	6.25	n/a	5.76
Other	0.12	0.00	0.00	1.11
Total	100	100	100	100

The significant level of car use for journeys to school contributes significantly to morning peak period congestion within the area and to safety and amenity issues outside school gates. There would appear to be considerable potential to increase use of sustainable modes for journeys to school in the area and therefore contribute to the overall target of at least 60% of journeys to school by sustainable modes by 2010/11.

5.3 Policy and Strategy Context for Smarter Choices in Cheshunt and Waltham Cross

There is a strong policy direction to reduce car use by promoting sustainable modes of transport, particularly walking and cycling within the area. Increased sustainable transport use could have beneficial environmental and health outcomes for the local population. Pedestrians and disabled people are at the top of the Department for Transport's Hierarchy of Users, followed by cyclists, and this needs to be reflected in the schemes being developed through the UTP.

5.3.1 Local Transport Plan

At a county-wide level, the policy framework for transport is the Local Transport Plan. The LTP2 sets out the County Council's core transport vision of "a safe, efficient and affordable transport system that allows access for all to everyday facilities". The LTP2 targets an 11% increase in cycling through the county from 2397 trips per day (2004/2005) to 2658 trips per day (2010/2011). It also promotes the enhancement of pedestrian environments through supporting initiatives such as the English Heritage 'Save our Streets' Campaign and targets for 52% of footways across the County to be considered for maintenance.

The Local Transport Plan is supported by several daughter documents, including the Cycling Strategy and the Rights of Way Improvement Plan, both at a county-wide level.

5.3.2 Hertfordshire Cycling Strategy

The Hertfordshire County Council Cycling Strategy is a daughter document to the LTP2 builds upon the strategy set out in the County Council's 'Long Term Strategy'. The primary purpose of the Cycling Strategy is to encourage more people to cycle more often, and to involve and support other stakeholders in doing the same.

Details of the objectives and strategy have been discussed within the Walking and Cycling section of this appendix.

5.3.3 Rights of Way Improvement Plan

The Rights of Way Improvement Plan is a daughter document to the LTP2 and consists of action plan to deliver what are perceived to be key improvements to the Rights of Way network. Further details on the needs of various Rights of Way users and the core actions have been discussed within the Walking and Cycling section of this appendix.

5.3.4 Sustainable Modes of Travel Strategy

The County Council has a Sustainable Modes of Travel Strategy (SMoTS) to help make walking, cycling and use of passenger transport a realistic and attractive option for journeys to schools and colleges. The SMoTS aims to:

- Reduce the use of the car for journeys to, from and between educational establishments
- Improve accessibility to, from and between educational establishments
- Improve child road safety
- Improve child health
- Improve the quality of the local environment

This strategy sets out the vision of Hertfordshire County Council to increase opportunities for children and young people to travel to, from and between schools and colleges by sustainable modes. It provides a breakdown of existing school travel patterns and outlines the actions and processes that will be adopted to improve the viability of sustainable travel.

Following consultation with internal stakeholders, eight specific objectives (statements of intent) were created to help achieve the aims. ***Table 5.6*** presents these aims and objectives as a matrix to show the relationship between them. A tick indicates that an objective will help to meet a particular aim. A cross indicates that there is not a direct relationship.

Table 5.6 Sustainable Modes of Travel Survey (SMoTS) Aims and Objectives Matrix

OBJECTIVES \ AIMS	1. To reduce the use of the car for journeys to, from and between educational establishments	2. To improve accessibility to, from and between educational establishments	3. To improve child road safety	4. To improve child health	5. To improve the quality of the local environment
1. Improve walking routes to, from and between educational establishments	✓	✓	✓	✓	✓
2. Improve cycle routes to, from and between educational establishments, and improve cycle facilities within them	✓	✓	✓	✓	✓
3. Improve passenger transport services to, from and between educational establishments	✓	✓	×	×	✓
4. Promote the use of the sustainable transport infrastructure	✓	×	✓	✓	✓
5. Inform children and parents/ guardians of the travel options available to them (including SEN pupils and those with disabilities)	✓	×	×	✓	✓
6. Engage all schools and colleges in the Travel plan process	✓	✓	✓	✓	✓
7. Encourage partnership working and strengthen links to other plans, policies and initiatives	✓	✓	✓	✓	✓
8. To continue SMoTS development and assess its effectiveness	✓	✓	✓	✓	✓

The UTP needs to respond to these objectives by considering and identifying appropriate measures through which these objectives may be achieved.

5.3.5 *Travel Smart*

The County has developed a project known as TravelSmart, which offers households information and support to enable people to walk, cycle and use public transport more often. The project started in Watford in 2008 and will run until 2010. It aims to reduce car use and encourage healthier lifestyles by increasing active travel in our daily routines.

A total of 25,000 households across Watford are being invited to take part in the project. Residents can choose from a wide selection of information such as local walking maps, cycling maps and bus timetables, as well as a discount card and the opportunity of a personal advice session with an expert. The information pack is delivered to households on foot or by bike. The project is

being funded by a grant from the Big Lottery Fund's Wellbeing Programme, with match-funding from Hertfordshire County Council and Watford Borough Council. Hertfordshire County Council is delivering the project in partnership with:

- Watford Borough Council
- Sustrans, the national sustainable transport charity
- Socialdata, travel behavior research experts

The project is also being supported by other local partners, including public transport operators, walking and cycling groups, and local businesses. To supplement the TravelSmart project, detailed travel behavior research was undertaken in Watford before the project started, with further research to be carried out at the end.

5.3.6 *Car Sharing*

Hertfordshire County Council operates a Car Share scheme which is focused on providing commuters living and working within Hertfordshire with the opportunity to meet with others travelling similar journeys to promote taking a single vehicle between them, rather than one each. This scheme, known as Hertfordshire Car Share, is part of the National, shareAcar.com group and promotes a safer environment for car sharing.

Car-sharing (also called lift sharing, ride sharing and carpooling) is when two or more people share a car and travel together. It allows individuals to benefit from the convenience of the car, whilst reducing the costs and alleviating the associated problems of congestion and pollution.

5.4 Potential Role of Smarter Choices in Cheshunt and Waltham Cross

Cheshunt and Waltham Cross, being compact towns in close proximity to London, have the potential to greatly benefit from Smarter Choices in order to tackle and manage congestion. There are a number of schools and a range of employers which could be used as a focal point for implementing travel plans and financial incentives could be considered to support travel plan measures. There are also several developments proposed for the near future and these could play an influential role in how people travel.

5.5 Review of Existing and Committed Proposals and Problem Identification

At present, only a handful of schools and employers have active travel plans although it is understood that the general direction is indeed for the development of travel plans to be rolled out. Consultation suggests that accessibility to information in general regarding sustainable modes of transport is poor.

5.6 Summary of Problems

Table 5.7 summarises the smarter choices problems identified through consultation and investigation:

Table 5.7: List of Smarter Choices Problems

SCP1	Lack of promotion/publicity to encourage cycling
SCP2	Insufficient focus on reducing the need to travel and encouraging greater use of sustainable modes of transport
SCP3	Lack of awareness of bus routes and timetables
SCP4	Limited number of schools with active school travel plans

5.7 Urban Transport Plan Options

The approach to delivery of Smarter Choices in Cheshunt and Waltham Cross, particularly travel planning and PTP should be integrated with delivery of physical measures to improve public transport provision, walking and cycle network improvements to ensure long term benefits of travel planning and PTP are locked in.

Smarter Choices measures for Cheshunt and Waltham Cross need to respond to the context outlined above and focus on the following:

- Improving walking, cycling and bus networks linking residential areas with schools, employment opportunities and key facilities;
- Improving facilities for cyclists (such as cycle parking and showers) at schools, workplaces and service centres;
- Influencing travel behaviour by integrated and targeted campaigns and programmes promoting sustainable modes and delivering information on sustainable modes and incentives for their use;
- Ensuring that new developments give priority to access by sustainable modes;
- Introduction of new services to encourage less car use such as car sharing schemes;
- Considering demand management options such as increases in parking charges for commuter parking
- Improving provision of information through walking and cycling leaflets

Proposals for improving walking, cycling and bus networks and services are elaborated in respective sections of this appendix. This section focuses on Travel Planning measures which may be expanded and developed within the study area.

5.7.1 Travel Smart (Personalised Travel Planning)

Recognising the success of TravelSmart project, it is proposed that a similar project could be rolled out within the Cheshunt and Waltham Cross area. This could initially be focused on a part of the district where other sustainable measures are being introduced. This would enable better integration between measures and deliver added value.

The same DfT research also identified key success factors for areas delivering PTP schemes:

- Plentiful and diverse local facilities (shops, employment centres, leisure facilities etc.);
- Good community networks;
- High levels of accessibility (by all sustainable transport modes);
- Excess capacity on the public transport system;
- A stable (non transient) population;
- Local recognition of congestion related problems;
- Recent investment in the local sustainable transport network.

Given the measures being proposed for walking, cycling and bus networks in the area it is proposed that a TravelSmart project could be brought forward in the Churchgate/Bury Green area.

The project would include Personalised Travel Planning (PTP), which is a targeted marketing technique that delivers information, incentives and motivation to help people overcome habitual use of the car and induce voluntary travel behaviour change. Research (DfT, 2007) concluded that residential PTP projects in the UK have achieved significant effects on reducing car driver and passenger trips and increasing in particular walking trips, as well as cycling and public transport. The cost of PTP has been between £20 and £38 per targeted household.

Cost assumptions: In November 2007 there were around 20,000 households in the Cheshunt and Waltham Cross area. Assuming that PTP would be targeted at 50% of these, the cost would be in the region of £200k to £400k. This could be programmed over a five year period giving an annual cost of between £40k and £80k. Funding for such a project could consider a rage of different options involving local authority, partners and development sector sharing delivery tasks to varying degrees.

5.7.2 *Car Sharing Scheme*

It is proposed that car sharing could be promoted specifically to residents and employees in the Cheshunt and Waltham Cross Area. There is an existing Hertfordshire Car sharing scheme which could be promoted to residents as part of a wider promotion of smarter choices and sustainable modes, integrated with delivery of other sustainable measures within the area.

5.7.3 *Monitoring of School and Employer Travel Plans*

Increased engagement with and monitoring of School and Employer Travel Plans within the area is proposed as a means of ensuring that the desired outcomes of the travel plans are being met and where they are not that review process are in place to ensure that effective actions are taken to deliver positive outcomes in the future.

- **Focus on larger employers:** A local authority appointed travel plan coordinator could engage these employers, present the potential benefits to implementing travel plans and provide support to help with the development and implementation of travel plans. Larger employers should have greater scope to develop and implement travel plan measures and by making use of the media and appropriate

communication tools, could take on a role model for other employers in the area.

- **Bring together employers in area wide travel plan initiatives:** This would focus on locations where larger numbers of employers are concentrated such as business parks and the town centre. A local authority appointed travel plan coordinator, would bring employers in defined areas together, to share information and experiences and identify joint initiatives. Initiatives that are impractical to individual organisations could be made feasible and cost-effective.
- **Insist on travel plans for new developments:** Planning applications for developments with traffic implications are already required to develop and implement travel plans. Crucially, a locally focused travel plan coordinator could provide guidance at application stage and support during the implementation stage. Travel Plans would be monitored, any non-compliance followed up to ensure travel plan targets are being met.
- **Engage the large majority of smaller employers:** The vast majority of employers employ less than 50 employees. While few of these employers will implement travel plans, encouraging these to take a few simple steps could influence the travel behaviour of many employees. The local travel plan co-ordinator could provide the tools, incentives and communication tools to involve these employers.

Cost assumptions: The cost of a travel plan co-ordinator has been assumed to be £50k per annum (including overheads) a team supervisor £80k. In addition to staff resources budget for expenses, sub-contracting etc would be required.

In 2001, there was a workplace population of some 12500 in the Cheshunt and Waltham Cross area (Source: Data Report 2007) of which half lived within the area.

In 2002, the average cost of running an employer travel plan was estimated to be £47 per annum per employee (Source: Making Travel Plans Work, DfT, 2002) or around £56 today (taking into account inflation according to the RPI).

To cover all employees, an annual budget of some £700,000 would be required to implement travel plan measures.

Assuming also that participating employers would contribute only half of these costs (for activities undertaken by employees of the business), the remaining requirement would be in the region of £350,000 per annum.

This could provide for a town wide business travel plan co-ordinator and one supervisor together with technical support, sub-contracting, materials and expenses (£220,000k).

It is recognised that this cost is substantial and therefore that the approach needs to be more focused to ensure maximum value for money. Delivery may therefore involve sharing a locally focused travel planning resource across a wider are than Cheshunt and Waltham Cross with activities targeted on specific businesses and schools where there appears to be greatest potential to achieve a shift to more sustainable modes.

5.7.4 *Promotion of Smarter Choices and Sustainable modes*

Ensuring that residents are made aware of Smarter Choices and sustainable modes options linked to County Wide HCC programmes and local travel plan

co-ordinator function referred to above should assist in increase the numbers using more sustainable modes of transport. A range of mediums and techniques are already used to promote sustainable modes and it will be important to ensure that these are tailored to circumstances in the Cheshunt and Waltham Cross area and involve creation of strong partnerships with local stakeholders.

5.7.5 *Developer Contributions Policy*

Funding for travel planning services is largely provided through revenue budgets, supplemented by external funding via bids to government and partnerships with other organisations. A significant source of potential funding is developer contributions. The development of a developer contributions strategy for the provision of area wide travel planning services, could provide a significant funding stream to assist deliver of these services.

5.7.6 *Summary of UTP Measures*

The following list summarises the UTP smarter choices measures which have been proposed:

- SC01: Develop Travel Smart – Rolling out the scheme across the area by wards; starting with Bury Green/Churchgate/Rosedale area
- SC02: Develop a car sharing scheme covering the Cheshunt and Waltham Cross area
- SC03: Ensure residents in the area receive information on smarter choices and sustainable modes on an annual basis (delivered as part of SC01)

5.8 Delivery

Delivery of UTP schemes is categorised into short term (0-2 years), medium term (3-5 years) and long term (greater than 5 years).

5.8.1 *Assessment of delivery years*

The determination of whether a proposed UTP smarter choices scheme is suitable for short, medium or long term delivery has been considered through an assessment framework using a range of assessment criteria (see Section 7 of this Appendix). Although schemes have been ranked in terms of anticipated outcomes and contribution to key LTP targets, programming is heavily dependent on feasibility. This relates to:

- scheme cost/affordability;
- availability of funding;
- contribution to a package of schemes;
- linkage with development
- agreement between delivery partners (where more than one agency is responsible for funding).

Schemes with lower risk factors were deemed as being feasible for short term delivery, whilst those with higher risk factors were identified for medium and long term delivery. Nevertheless, where possible, priority would be given to those schemes that produce the greatest benefits in relation to cost.

5.8.2 *Funding opportunities*

Marketing campaigns to raise awareness and increase the uptake of walking, cycling and public transport will be funded through the county council's LTP funding. Bus and rail operators may also choose to fund their own marketing campaigns, in particular for promotional fares, although this will be independent of the UTP proposals to raise awareness.

Travel Plans for new developments should be made the responsibility of the developer to deliver, although it will involve close working with HCC officers. This will require funding for the employment of a Travel Plans officer, which should be allocated within the county council's structure. Travel Plan measures should be sought through delivery of the development and secured through S106 agreements.

Where specifically related to improvements in cycling uptake, funding (and partial funding) could be sought from Sustrans who have previously funded the TravelSmart scheme in Watford.

5.8.3 *Delivery programme*

Having investigated the feasibility and funding opportunities, ***Table 5.8*** presents the list of walking and cycling UTP measures categorised into delivery periods:

Table 5.8: Smarter Choices Schemes for Short, Medium and Longer Term Delivery

Scheme Reference	Scheme Description
Proposed Short Term Schemes	
SC01	Develop Travel Smart – Rolling out the scheme across the area by wards
SC03	Ensure residents in the area receive information on smarter choices and sustainable modes on an annual basis
Long term schemes	
SC02	Develop a car sharing scheme covering the Cheshunt and Waltham Cross area

AECOM

Highways & Parking

6 Highways & Parking

6.1 Introduction to Highways and Parking

This section discusses issues, opportunities and potential measures with regard to the highway network in Cheshunt and Waltham Cross in the context of Hertfordshire County Council's relevant policies. The main issue for the highway network in the area is the demand placed upon it by private car travel, particularly at peak times. This issue is not simply about capacity of the network but is about managing travel demand on the network.

It must also be taken into account that the role of the highway network is not solely to service the needs of the private motorist. It is necessary to consider car travel in a wider context by considering how the physical highway infrastructure and available space is shared amongst road users including business users, freight, buses, car commuters, pedestrians, cyclists and powered two-wheelers.

Although there needs to be a strong focus what are traditionally considered as highways issues such as congestion and parking, there is also a need to consider how the operation and management of the highway network affects all road users and that congestion can be reduced by encouraging alternatives to the car and by discouraging unnecessary car use.

Finally, it must also be recognised that the highway network in Cheshunt and Waltham Cross does not exist in isolation but links into wider networks, including the M25 and principal roads serving Enfield and Waltham Abbey. In the main, these wider networks are heavily constrained and incapable of accommodating additional peak period traffic demand that could arise through capacity enhancements in the study area.

6.2 Background to Highways & Parking in Cheshunt and Waltham Cross

6.2.1 Overview of Highway Demand in Cheshunt and Waltham Cross

According to the Cheshunt and Waltham Cross Urban Transport Plan Draft Data Report (2007), the car modal share comprises approximately 71% and 63% of out-commuting trips from Cheshunt and Waltham Cross respectively, and 85% and 78% of in-commuting trips to Cheshunt and Waltham Cross respectively. For those living and working in the town 51% and 34% of commuting trips are made by car.

Congestion occurs routinely during peak periods at a number of locations across the study area. Much of this congestion is associated with the great demand for access to and from Greater London and the M25 and occurs along the A10 and its feeder routes and crossing points. Congestion also occurs in the vicinity of Waltham Cross and Cheshunt town centres.

With regard to parking, information received from Broxbourne Borough Council indicates that, although no formal mechanism currently exists to monitor and review car parking usage and demand, the overall level of parking provision appears to be adequate. There appear to be specific deficiencies in parking

provision at the Cheshunt rail station while the Theobalds Grove rail station is under-utilised (this is covered in a separate discussion note). In addition, there is a considerable amount of on-street parking in residential areas associated with nearby rail stations and employment sites.

6.3 Policy and Strategy Context for Highways & Parking in Cheshunt and Waltham Cross

A comprehensive analysis of the policy context was presented in the Stage 1 report. Therefore, rather than repeating the details which have already been covered, this section summarises the key points which were noted.

At all policy levels (national, regional, county and borough) the common priority themes in relation to transportation are:

- Tackling and managing congestion
- Making best use of existing infrastructure
- Promoting sustainable transport modes (walking, cycling and public transport)
- Improving road safety
- Improving accessibility
- Developing a transport system which is forward thinking for the future

6.4 Potential Role of Highways & Parking in Cheshunt and Waltham Cross

The highway network in Cheshunt and Waltham Cross has the potential to facilitate effective movement both between the towns and to further regions. Consultation reflected that off-peak travel was generally easy; this suggests that movement difficulties are largely a result of congestion, which can be managed during the peak through promotion of more sustainable modes.

Parking is an important element of ensuring the economic vitality of the towns, however must be appropriately prices and managed to ensure that it does not encourage unnecessary car trips.

6.5 Review of Existing and Committed Proposals and Problem Identification

6.5.1 General Congestion on the A10

There is general congestion on the A10, especially during peak hours and at the major junctions. The following paragraphs describe each of the key locations where congestion occurs on the A10 and indentifies possible contributory factors.

6.5.1.1 A10/M25 Junction (M25J25)

The A10/M25 junction is a signalised grade separated motorway junction providing strategic links to Greater London, the M1 and the M11. Operation and maintenance of the junction is undertaken by the Highways Agency. As such, any proposals for works to the roundabout must be led and managed by the Highways Agency.

There are frequent queues on the A10 leading towards the motorway junction, reflecting the considerable demand for access to the motorway network. The

layout of the A10 on the approach to M25 J25 from the north has recently been modified to create a new junction to serve the Park Plaza development. The new arrangement incorporates a signalised junction to accommodate increased turning movements into the Print Works and Park Plaza site. The new arrangement contains three 'ahead' lanes and two 'right turn' lanes in the northbound direction; and two 'ahead' lanes and one 'ahead and left turn' lane in the southbound direction.

Until recently, there were no right turn facilities to and from the Print Works and Park Plaza site, resulting in u-turning movements at the two closest roundabouts. The new signalised junction now enables the right turning movements to be made, taking some pressure off the adjacent roundabouts. However, the benefit of the reductions in u-turning movements is offset by the installation of traffic signals on the A10 which was previously free-flowing. The additional stop on the northbound carriageway introduced by the traffic signals has been managed by the additional 'ahead' lane to minimise queuing tailbacks to the M25J25 roundabout. The result is a high capacity junction that is operating well.

There are plans to increase the capacity of the M25 between Junction 23 and Junction 27 from three lanes to four lanes through dynamic use of the hard shoulder Hardshoulder Running – HSR). Much of the works will be carried out within the existing highway boundary, and existing bridges and structures will generally not be altered.

This scheme will help to alleviate existing pressure but will not cater for the substantial demand for movement in the corridor at peak times. The M25 and the A10/M25 junction are significant constraints in the wider highway network. Increased traffic demand from the local area on the M25 could undermine the benefits of the M25 HSR scheme and increase congestion problems on the M25 and in Enfield.

6.5.1.2 A10/A121 Theobalds Roundabout

The A10/A1121 Winston Churchill Way roundabout is a four arm roundabout, with the A121 Winston Churchill Way leading east towards Waltham Cross town centre and the B198 Lieutenant Ellis Way leading northwest towards Cuffley and further on to Potters Bar and Hatfield via B156.

The northern section of the Park Plaza site, known as the Co-op site, sits in the southeast quadrant of the roundabout and is being proposed for a sustainable mixed use development, although housing is not considered an acceptable use within the mix. Additionally, St Mary's School will be relocating to a site to the north of B198 Lieutenant Ellis Way from its present location off Goff's Lane in Cheshunt.

This roundabout suffers from queuing from all directions in the morning peak period. There is a need to consider signalising this junction to better manage capacity and to facilitate pedestrian movements across the A121 arm.

As part of the new signalised junction at the Print Works site (see section above) the northbound carriageway on the A10 has been widened to three lanes. This continues on to the A10/A121 Theobalds Roundabout so that the northbound entry is now three lanes instead of two. This contributes to reducing queue lengths on the approach to the roundabout.

6.5.1.3 A10/College Road Signalised Junction

The A10/B198 College Road junction is a signalised crossroads junction. Pedestrian crossing facilities are provided across the A10 via a footbridge, and surface crossings are present across the College Road arms. Site observations suggest the footbridge is well used, particularly for access to nearby school sites.

The A10/College Road junction is used heavily by residents from the Rosedale and Hammond Street area. In addition, site observations suggest that it is also used as part of the school run to the cluster of schools in the area.

Queues are known to form on the A10 as a result of the traffic signals operation. Queues in the AM peak occur in the southbound direction and in the PM peak occur principally in the northbound direction, reflecting the predominant movement to and from the M25 and London.

6.5.1.4 A10/Church Lane Signalised Junction

The A10/Church Lane junction is a signalised junction with surface pedestrian crossing facilities across all arms. There are also advanced cycle stop lines on the Church Lane arms.

The A10/Church Lane junction is used heavily by residents from the Churchgate and Goff's Oak area. In addition, site observations suggest that it is also used as part of the school run to the cluster of schools in the area.

Queues are known to form on the A10 as a result of the traffic signals operation. Queues in the AM peak occur in the southbound direction and in the PM peak occur in the northbound direction, reflecting the predominant movement to and from the M25 and London.

Evening peak northbound queues appear to be marginally less extensive than at the College Road Junction as the latter creates the northbound throttle point. Any measure to improve or modify operation of one of these two junctions on the A10 will need to consider the knock on effect on the next junction, in order to ensure that congestion is not simply moved to the next junction, nullifying potential benefits.

6.5.2 *Congestion on A121 Station Road*

A121 Eleanor Cross Road is an urban dual-carriageway from Waltham Cross town centre eastwards. The road then becomes Station Road, where it narrows down to a single carriageway where it crosses the River Lea (or Lee) and continues as a single carriageway to the signalised junction with the B194 to the west of Waltham Abbey. A Hertfordshire County Council highways traffic count site (No 261) is located on A121 Station Road. The AAWD in 2006 was recorded to be 28,741.

The A121 is therefore a very busy route key route. In the eastbound direction it suffers from congestion owing to it only being of single carriageway standard on the Station Road section. This is compounded by the presence of a number of significant junctions with heavy turning movements in the vicinity of Waltham Cross. The traffic signals at Britannia Road contribute to traffic congestion as do the several right turn lanes from the eastbound carriageway to the residential area to the south of the A121. These, together with the carriageway narrowing at Station Road reduce the traffic capacity of the route and cause traffic to back up through the Monarchs way roundabout at peak times.

On the westbound carriageway, the poor operation of the Monarch's Way Roundabout leads to queuing along A121 Eleanor Cross Road during the PM peak period.

6.5.3 *Congestion at Monarch's Way Roundabout*

Monarch's Way roundabout is known to suffer from routine congestion. Detailed analysis has not been undertaken to determine the cause of congestion, but site observations suggest the following:

Tail back from carriageway narrowing at Station Road (see above): The queuing issues described above can tail back to the Monarch's Way roundabout and block the A121 eastbound exit.

Lack of lane guidance: Lack of lane guidance on the northern portion of the roundabout results in vehicles not utilising the full road space available. Vehicles travelling eastbound along the A121 do not follow the kerb line, but instead travel in a relatively straight path. When queuing extends along this exit, vehicles on the roundabout block the path for those travelling southbound to the A1010 exit.

Bus station operation: The Waltham Cross bus station is located off Eleanor Cross Road (west). Buses presently unload on Eleanor Cross Road before continuing into the bus station terminal. There appears to be little coordination of bus arrivals, which means that several buses sometimes arrive and unload concurrently. This results in queuing along the Eleanor Cross Road (west) exit and also restricts vehicular access to the town centre car parks.

In addition, entry to the roundabout from Eleanor Cross Road (west) was noted to be difficult due to the high movement of traffic travelling westbound. This is particularly problematic from a public transport perspective as buses leaving from the bus station are frequently delayed. This will need to be taken into consideration if a separate bus layover facility is proposed outside Waltham cross rail station (see separate Bus and Rail Discussion notes).

6.5.4 *Localised Congestion at B176/College Road/Windmill Lane – The Pond*

These junctions comprise a roundabout and signalised junction in close proximity, together with controlled pedestrian crossings. Queuing occurs on all approaches at peak times.

6.5.5 *Brookfield Lane West and Halfhide Lane used heavily by residential traffic from Hammond Street to access A10*

The level of traffic on the B176 Halfhide Lane has increased significantly over the years as a result of the development of the Brookfield Centre. Congestion occurs at the traffic signal junction providing access to the centre from Halfhide Lane. This needs to be addressed as part of the further development of the centre taking into account the access needs of pedestrians, cyclists and buses. The proposed new link to the A10 grade separated junction at Turnford will help relieve traffic pressures on Halfhide Lane and the A1170 Great Cambridge Road.

6.5.6 *On-street Parking particularly near train stations*

On-street parking occurs on residential streets near train stations. Unmanaged on-street parking causes obstructions in the carriageway, inhibits general traffic movement, can reduce the ability of residents to access their properties and cause visual intrusion. It also causes a hindrance to cyclists by forcing them further out into the carriageway. Residents parking schemes can be an

effective solution but are not popular with residents owing to associated cost and bureaucracy. Schemes drawn up for the Four Swannes residential area in Waltham Cross and the Delamere Road/Windmill Lane area in Cheshunt failed to achieve the necessary level of public support following public consultation and were subsequently abandoned.

6.6 Summary of Problems

Table 6.1 summarises the highways and parking problems identified through consultation and investigation:

Table 6.1: List of Highways and Parking Problems

HPP1	Congestion and parking around schools
HPP2	Congestion along main traffic corridors
HPP3	Congestion in town centres and at Brookfield Centre
HPP4	Localised congestion at key junctions
HPP5	Localised congestion due to poor positioning of bus stops
HPP6	Congestion due to illegal/unauthorised parking, bus lanes and traffic calming
HPP7	Illegal parking in bus lanes
HPP8	Road accidents and speeding along main roads in residential areas
HPP9	Commuter parking in residential areas near stations
HPP10	Inadequate parking facilities at Cheshunt and Waltham Cross rail stations
HPP11	Lack of signing to car parks
HPP12	Lack of car park monitoring mechanisms lead to inconsistent provision of car parking and variations in charging regime (rail stations and town centre car parks)
HPP13	Insufficient car parking facilities at town centres
HPP14	Expansion of rail station car parks is restricted by land ownership constraints
HPP15	Low proportion of sustainable travel to Brookfield due to over-provision of parking and lack of bus services
HPP16	Abuse of disabled parking bays
HPP17	Parking at Cheshunt and Waltham Cross rail stations is expensive

6.7 Urban Transport Plan Options

Having reviewed the policy context in which the UTP strategy is to be developed, it is clear that a 'predict and provide' approach to capacity improvements is not in line with the sustainable approach which is encouraged at all levels of implementation. Instead, the focus of the UTP measures should be based on encouraging modal shift to reduce pressure on the highway network and targeted highway improvements aimed at making the most out of

existing infrastructure. The former is considered in other sections of this Appendix.

Although the focus of the UTP is clearly not in delivering large capacity improvements across the network, this has not been excluded from consideration.

The following options for highway improvements are proposed, in relation to the specific key issues identified above:

6.7.1 General Congestion on the A10

6.7.1.1 A10/M25 Junction (M25J25)

This junction is not within Hertfordshire and any changes to its layout will be subject to Highways Agency approval. The junction is already signalised and any option for significant capacity enhancements, such as an additional bridge over the M25 for A10 traffic, would involve a substantial cost and could lead to increased congestion problems downstream in Enfield, for example at the A1055 junction immediately to the south of the M25. Any increase in capacity for access to the M25 is likely to be resisted by the HA owing to the existing and forecasted pressures on this route. This junction therefore represents a fixed level of capacity on the network in the area for the foreseeable future.

6.7.1.2 A10/A121 Winston Churchill Way Roundabout

Capacity and traffic management improvements are recommended for investigation at the A10/A121 Roundabout in the form of signalisation to better manage flows to the roundabout. This has been investigated previously as part of several different development proposals, including for Park Plaza and St Mary's School relocation.

At the time when the St Mary's School Transport Assessment was submitted, it was envisaged that the Park Plaza development would be delivered prior to the new school opening and that signalisation of the roundabout would be implemented as part of the overall Park Plaza development. The completion of this development has been delayed and it is unlikely to be delivered in the short term. A potential signalisation scheme was included as part of the St Mary's School Transport Assessment in the event that the Park Plaza development did not progress, as is now the case. The progress of a scheme to signalise the roundabout remains uncertain but there continues to be a need to investigate this as part of a wider scheme to manage traffic at A10juntions from M25 to Brookfield.

The Park Plaza development proposes three access options for the site: from the existing access to the print works site, off Winston Churchill Way, or via a new arm on the A10/A121 Roundabout. The Park Plaza development is envisaged to be a high quality gateway feature to the Cheshunt and Waltham Cross area and as such, a purpose-built access has been proposed. The feasibility of this is doubtful; the provision of an additional arm on the A10/A121 Roundabout is not recommended owing to the additional pressure it would place on the roundabout. Therefore, it is believed that providing an access from the existing print works site is likely to represent the best solution, possibly coupled with a left in left out on Winston Churchill Way.

At the time of writing this UTP Phase 1 works to improve the roundabout have been completed with further works possible.

6.7.1.3 A10/College Road Signalised Junction

According to the Transport Assessment prepared for the relocation of St Mary's School, the relocation of the school and reallocation of the existing site to a residential development is likely to result in a 2.5% reduction in total traffic using the junction in the AM peak where congestion is currently at its worst as a result of school runs.

Capacity at this junction is already at maximum level. Pedestrian provision is provided via a footbridge across the A10 and there are no specific pedestrian stages at this junction, allowing extra green time to A10 traffic which would otherwise have been given to a pedestrian phase. There are land constraints at this built up junction so widening, for example to provide three ahead lanes, is likely to be unacceptable in cost and environmental impact grounds.

Options for reducing congestion at the junction need to focus on signal phasing and management of turning movements. This should be investigated following relocation of St. Mary's School. It is also recommended that school travel plans are actively promoted for other schools in the vicinity to further reduce the impacts of the school run.

6.7.1.4 A10/Church Lane Signalised Junction

This junction includes pedestrian facilities which permit pedestrians to cross with traffic movements, therefore minimising impact on traffic capacity. It is understood that consideration has been given in the past to the provision of a pedestrian bridge but that this is not considered to be particularly beneficial or viable.

As part of the cycling measures for the UTP, a cycle route is proposed which passes this junction, linking the residential areas in the west to Cheshunt town centre and rail station in the east. As mentioned previously, there is already an advanced cycle stopline at this junction on the Church Lane arms. The formalisation and enhancement of a cycle route, accompanied with smarter choice measures could encourage further cycle use and result in an increased modal share for cycling which could reduce east-west traffic movements and associated congestion.

There are space constraints at this junction and substantial construction to increase capacity does not appear feasible and should be considered only as part of a wider route strategy. The short term recommendation for managing congestion at this junction is to undertake a junction analysis, in particular, assessing the signal timings in relation to current traffic conditions.

6.7.1.5 General recommendations for the A10

While individual junction assessments have the potential to bring about localised improvements, these may be negated by capacity constraints at adjacent junctions. Given the level of congestion on the A10, the introduction of traffic signals at the Park Plaza and potential introduction of traffic signals at the A121 junction, there is a need to investigate a route strategy in order to maximise efficiency and safety. A route study focussing on key junctions, using modelling software such as VISSIM, would enable traffic management measures to be considered in relation to the layout and operation of key junctions. This could also include consideration of traffic impacts arising from development proposals in the corridor, different traffic management scenarios, provision of cycling and pedestrian crossing facilities, and consideration of major improvements if necessary.

6.7.2 *Congestion on A121 Station Road*

It is clear that one of the main causes of congestion on the A121 Station Road is the narrowing of the carriageway from dual carriageway to single carriageway. However, there are several constraints which would make it impractical to widen and hence create extra capacity. These constraints include the river crossing, frontage development and the Lee Valley Regional Park (widening could be prohibitively costly and environmentally intrusive).

The A121 between Waltham Cross and Waltham Abbey (in Essex) provides the only east-west route in the local area to link to the B194. The M25 also provides a link from west Cheshunt and northwest Enfield to the south east of Waltham Abbey but does not link well to the B194. (Use of the M25 for junction hopping should in any event be discouraged.) As such, the A121 accommodates traffic between Waltham Abbey and north-west Enfield via the A1010 as well as Waltham Abbey to M25 west.

The A121 therefore carries significant through-trips as well as serving Waltham Cross town centre. One option to resolve capacity issues and reduce through traffic in Waltham Cross could be the provision of an alternative link to provide a new crossing of the River Lea. There appears to be potential to create this link between the A1055 Mollison Avenue in Enfield and A121 Meridian Way in Essex. However, this would be a major proposal and could be taken forward only with the support of Enfield, Essex and TfL. Being outside the Hertfordshire County boundary, it is not possible for this proposal to be brought forward through the Cheshunt and Waltham Cross UTP.

6.7.3 *Congestion at Monarch's Way/Abbey Road/A121 Roundabout*

The level of traffic and highway layout in Waltham Cross creates local problems. In particular, the Monarchs Way roundabout subway system can act as a barrier to pedestrian movement between the town centre/bus station and the rail station. There is a need for a traffic light controlled pedestrian facility across the A1010 Abbey Road arm of the Monarchs Way roundabout to provide a surface level link between the bus station and the train station.

A study was undertaken in 2003 which investigated the complete signalisation of the roundabout to increase bus priority. The conclusion of the study was that such a scheme would result in excessive queuing and delays to other traffic. As part of the development of the UTP, an investigation has been carried out into the provision of a toucan crossing across the A1010 Abbey Road arm of the junction.

A feasibility study has been undertaken as part of the UTP process and a scheme pro-forma has been produced for a toucan crossing to be provided across A1010 Abbey Road. This investigation modelled the effect of a toucan crossing using LINSIG and has concluded that the provision of a toucan crossing across this arm of the roundabout is feasible in engineering and safety terms, although it would require visibility from the east to be improved by removal of overgrown vegetation. This study has concluded that, because the crossing would be set back from the roundabout, only affect the one arm and that there would not be a continuous pedestrian demand, there would be a minimal effect on the operation of the roundabout.

Observations of the roundabout also indicate that a revised lining scheme on the roundabout could provide some limited capacity benefits through better lane

discipline on the roundabout. The scheme could be carried out at low cost and implemented in conjunction with the provision of a toucan crossing.

An investigation has also been carried out into modification to the roundabout junction to improve bus operations, including signalisation of the Eleanor Cross Road west approach, widening of the Monarchs Way westbound approach and provision of additional circulating lanes on the roundabout.

This has concluded that signalisation of the Eleanor Cross Road West approach causes significant queues back from the circulatory stop line in the left turn lane for exit to A121 Monarchs Way westbound. These queues will block back across several entries and exits, although this may be reduced if the circulatory lanes are re-designated to allow two lanes for left turning traffic to A121 Monarchs Way westbound and one for the A121 eastbound.

In addition, signalisation of the Eleanor Cross Road west entry could significantly increases the queue lengths on this approach. In order to minimise the queues, it would be necessary to increase the red time on the circulatory carriageway stop line. However, there is already significant queuing (and blocking back) which would worsen if this were the case.

The need to manage traffic better in the Waltham Cross area continues to be a priority, particularly the need to improve bus operations, including access to the bus station and rail station. If buses are to better serve the rail station, this would result in bus movements at the roundabout significantly increasing. To facilitate this objective, there is a need to ensure that buses experience minimal delay at Monarch's Way Roundabout.

Bus priority could be delivered by a major remodelling of the roundabout layout to provide a cut-through linking the bus station directly with A121 Eleanor Cross Road. However, this would require a further road over the existing pedestrian routes requiring a more extensive underpass system which would be unpleasant for pedestrians. Furthermore, in order to truly present a priority to buses, signalisation would be required to allow for buses to access the cut-through. Providing full signalisation of the roundabout could result in significant disruption to traffic (as previously referred to). Modelling undertaken for the current UTP also shows that due to the low flows from the bus station approach, the arm would receive minimum green time if signalised and would actually result in longer delay to buses.

Given the constraints of single carriageway operation on Station Road, there is a case for undertaking a route study of the A121 from the A10 to Waltham Abbey. This could be undertaken through a micro-simulation model such as VISSIM and examine options for improving the operation of junctions along the route to provide consistent capacity along the whole route. This would include consideration of options for road space reallocation, including bus priority, cycling and pedestrian facilities.

Such a study could be extended into a wider network study to consider the potential link between Mollison Avenue and Meridian Way (referred to above) and the effect that such a link would have on the operation of Monarch's Way Roundabout. This wider study would aim to identify an appropriate route strategy for the A121 taking into account the needs of all users of the highway and longer term vision for the area.

6.7.4 *Localised Congestion at Cheshunt Town Centre*

The highway layout in Cheshunt town centre is confusing with a range of traffic movements and pedestrian facilities within a small area that comprises a roundabout, traffic signal controlled "T" junction and bus stops. The space at The Pond is dominated by traffic with the main open area situated within the roundabout. There appears to be scope for reorganising and reallocating the highway to give more priority to the space as opposed to the demands of traffic. This could improve the contribution of the space to the town centre and for people using the facilities in the town centre.

Although the aim of this study would be to enhance Cheshunt town centre as a local facility, the roads passing through the centre function as significant local distributors and it would be necessary to ensure that any scheme could be achieved with little or no disbenefit to traffic. Likewise, the study should ideally be taken forward as part of a wider master planning exercise for the centre, taking into account pedestrian, parking, townscape and access needs.

6.7.5 *Brookfield Lane West and Halfhide Lane used heavily by residential traffic from Hammond Street to access A10*

A previous study into the Greater Brookfield area undertaken by GVA Grimley concluded that a link around Greater Brookfield would be required in order to meet the aspirations for an integrated town centre where the streetscape would lend itself towards high levels of pedestrian, cyclist and public transport activity. This overarching principle is supported and has been pursued through the UTP.

There is an aspiration for Greater Brookfield to be developed into a town centre in its own right and a master planning exercise is being undertaken to ensure a holistic approach to remedy the piece meal development that has occurred to date. It is important that transport matters are taken into consideration in the early phases of master planning to ensure that the significant role of transport in delivering a sustainable environment is not overlooked, particularly the needs of public transport, cyclists and pedestrians.

The proposed approach to the transport provision for the Greater Brookfield development should be consistent with the following principles:

- Provision of a link road from Halfhide Lane to the A10 Turnford Junction;
- Provision of a new pedestrian space at the core of the development on the bypassed section of Halfhide Lane;
- Provision of high quality bus infrastructure within and through the development to provide priority for buses over general traffic;
- Provision of frequent bus services to the area from main residential areas within Cheshunt and Waltham cross;
- Provision of high a quality cycle and walk network to serve the area:
- Introduction of a parking management regime for public car parks in the area consistent with management of other centre car parks in the wider area;

6.7.6 *Off-street Car Parking*

The potential for additional parking facilities at rail stations is considered as part of the discussion note on rail.

Information on use of car parks across the study area suggests that, in general, there is sufficient parking available at town centres with the possible exception of Cheshunt. However, there are considerable gaps in information on car park use and public perceptions of car parks and it is recommended that a comprehensive review of the use of car parks is undertaken. This should identify utilisation on typical weekdays and Saturdays in "neutral" months and during December (run up to Christmas). Such a study would assist in identifying the supply and demand position for parking spaces and the extent to which the provision of parking meets user requirements.

Signing for town centre car parks is relatively unclear and often lost within street clutter. Clear and concise signing, indicating whether a car park is for short stay or long stay would improve traffic conditions by reducing the number of misdirected vehicles. Other aspects such as the quality and condition of car parks and quality of signage and information within car parks should be reviewed and improved.

6.7.7 *On-street parking*

There are numerous parking lay-bys along the more heavily trafficked local routes in the area. These help to minimise adverse impacts on traffic flow while maintaining access to frontage properties. Many local centres in particular benefit from parking lay-bys and parking service roads.

The need for additional parking lay-bys should be subject to on-going review and additional facilities should be provided where this is practical, particularly where this will reduce the impact of parked vehicles on traffic flow and where using parking controls to address the problem would be inappropriate owing to adverse effects on businesses or residents.

Parking of commuter traffic in residential areas is already being addressed through established processes for introducing residents parking schemes. This should continue although it is recognised schemes may not progress owing to inadequate local support, as demonstrated by the recent proposals for the Four Swannes Area CPZ. Where a resident parking scheme cannot be implemented, installation of parking lay-bys may be an acceptable step in managing the undesirable effects of on-street parking.

In order to combat unmanaged on-street commuter parking, it is necessary to complement parking enforcement measures with an adequate supply of reasonably priced parking facilities. The provision of quality car parks with additional security facilities such as staffing, lighting and CCTV may encourage car users to park in authorised locations. Park Mark is a scheme whereby car park operators can apply to have their car parks registered under the scheme. In order to qualify for registration, the car park must meet certain safety and security criteria. Achieving the Park Mark status demonstrates a quality car park.

At present, Broxbourne Borough Council operated car parks and the Pavilions Car Park near Waltham Cross town centre all have Park Mark status. It is desirable that all major car parks in the area are brought to a standard in line with those required by the Park Mark scheme, and that the standard is maintained.

Unauthorised on-street parking causes problems at various locations in the area, including in bus lanes. It is important that appropriate enforcement action is taken to address parking that significantly impacts on traffic flow or bus

operations. Where bus priorities are abused, this could have a detrimental effect on the perception of public transport.

6.7.8 *Traffic and Environmental Sites*

HCC produces a list of traffic and environmental sites which identifies areas where speeding, congestion and road safety are key issues. The present list includes the following priority schemes which will be included within the UTP:

- Goff's Lane speed reduction scheme
- College Road/Cromwell Road Roundabout Improvements
- Brookfield Lane West traffic calming
- Church Lane Shops Access Improvements
- Rosedale Way/Fairfield Primary Safer Routes to School scheme

6.8 Delivery

Delivery of UTP schemes is categorised into short term (0-3 years), medium term (3-5 years) and long term (greater than 5 years).

6.8.1 *Assessment of delivery years*

The determination of whether a proposed UTP smarter choices scheme is suitable for short, medium or long term delivery has been considered through an assessment framework using a range of assessment criteria (see Section 7 of this Appendix). Although schemes have been ranked in terms of anticipated outcomes and contribution to key LTP targets, programming is heavily dependent on feasibility. This relates to:

- scheme cost/affordability;
- availability of funding;
- contribution to a package of schemes;
- linkage with development
- agreement between delivery partners (where more than one agency is responsible for funding).

Schemes with lower risk factors were deemed as being feasible for short term delivery, whilst those with higher risk factors were identified for medium and long term delivery. Nevertheless, where possible, priority would be given to those schemes that produce the greatest benefits in relation to cost.

6.8.2 *Funding opportunities*

Funding opportunities for highway and parking schemes will be limited to LTP allocations and BBC's capital works budget. Developer contributions should be sought where the implementation of scheme is required to ensure the feasibility of a proposed development.

6.8.3 *Delivery programme*

Having investigated the feasibility and funding opportunities, ***Table 6.2*** presents the list of walking and cycling UTP measures categorised into delivery periods:

Table 6.2: Highways and Parking Schemes for Short, Medium and Longer Term Delivery

Scheme Reference	Scheme Description
Proposed Short Term Schemes	
HP01	Improved lining at Monarchs way roundabout
HP06	Eleanor Cross taxi parking provision
HP07	Roundel High Street Improvements
HP10	College Road / Cromwell Road Roundabout Improvements
HP13	Rosedale Way/Fairfield Primary Safe Routes to School scheme
HP14	**Study** - Investigation of A121 route strategy including revised junction at Monarchs Way roundabout
HP15	**Study** - Investigate masterplan for Cheshunt town centre to include a revised junction arrangement at the Pond to enable more space to be given over to pedestrians and additional short stay parking for the centre
HP16	**Study** - Investigation of traffic management strategies for the A10, including signalisation of A121 junction.
HP18	**Study** - Investigate transport measures to support the proposed Brookfield Riverside development
Proposed Medium Term Schemes	
HP09	Goffs Lane speed reduction scheme
HP11	Traffic calming along Brookfield Lane West
HP12	Church Lane Shops Access Improvements
Proposed Long Term Schemes	
HP02	Provide CCTV and VMS signing A10 (M25 - Church Road, on approaches to Cheshunt and M25) providing information on congestion

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Scheme Assessment Framework

7 Scheme Assessment Framework

7.1 Introduction to the Scheme Assessment Framework

A fundamental element of the UTP is the identification of the existing transport problems and issues, and the development of a series of targeted, deliverable improvement schemes that can be taken forward in a delivery programme. This section identifies the steps which have been taken in this process and describes the sifting methodology which has been used to reduce the number of potential improvement schemes to a prioritised number of targeted improvements and how these have been prioritised against relevant objectives and indicators. The final step has been to review costs and funding availability in order to formulate a definitive list of schemes for delivery over a 0-2, 3-5 and post-5 year periods.

7.2 Problem Identification

Various methods have been used to identify the current transport problems and issues within the study area, including Stakeholder events, a public consultation exercise, a review of studies and relevant documents and site surveys. This process has yielded the identification of a large number of individual problems or issues within the study area, many of which may be addressed through the UTP.

A stakeholder workshop was held at Broxbourne Borough Council on 27th January 2009. This event was attended by 32 of a potential 92 stakeholders, including local councillors, the emergency services, local businesses and transport lobby groups. The purpose of this event was to confirm the accuracy of a list of potential problems and issues already identified through officer consultations, review of relevant data sets and site surveys, and to identify any further problems which would require investigation throughout the UTP. This event also provided a forum for the identification of a list of potential solutions for each of the problems identified.

In general, the Stakeholder groups broadly agreed with the identified problems presented by AECOM and the Client. The Stakeholder Event also revealed a number of previously unidentified issues in Cheshunt and Waltham Cross, which were added to a spreadsheet containing a list of all identified and perceived problems in the area. This spreadsheet has been continuously updated through the development of the UTP as further problems and issues have been identified.

Some of the main problems identified by the Stakeholder groups included; poor east-west links, poor accessibility to rail stations, poor cycling facilities and poor integration of bus and rail services. The top three solutions identified by the Stakeholder groups were as follows:

- Improve bus interchange and services;
- Improve existing traffic signal operation on A10 and install traffic signals on the A121 where this would improve traffic flow/avoid excessive delays;

- Improve east-west links.

Further stakeholder/discussion group meetings were held on 26th February 2009, specifically in relation to cycling and rail issues within the study area. These meetings were attended by representatives of Sustrans and National Express East Anglia respectively, and were chaired by FM and the Client project team. The purpose of the meetings was to consider planned and prospective measures to improve cycle and rail facilities in the Cheshunt and Waltham Cross area, with a view to incorporating deliverable schemes in the Urban Transport Plan. Once again, any additional problems identified at these meetings were incorporated into the problem spreadsheet.

Further problems were identified through a public consultation exercise, which was carried out in the Broxbourne borough during the period 1st - 25th March 2009. Some 39,000 questionnaires were delivered to households, with respondents being asked to rate a number of transport issues within the Cheshunt and Waltham Cross area firstly by quality and secondly by importance. These issues were divided into four sections: traffic and parking; bus services and facilities; rail issues, services and facilities; and walking and cycling. Respondents were also asked to rank their top three priorities in need of improvement from a list of transport issues which had been identified prior to the survey.

In total, 129 responses were received during the public consultation event. This exercise revealed a number of additional problems and issues, some of which had not been picked up during earlier Stakeholder events or from previous observations or discussions. Some of these items were considered to be too specific to warrant inclusion in the UTP, and it was deemed more appropriate for these comments to be passed on to the local authority for attention. However, those issues not previously identified were added to the problem spreadsheet.

Further explanation of the stakeholder workshop process and public consultation process is included in Appendix Volume 2.

Table 7.1 below sets out the transport problems and issues identified through the four information sources described above which have been grouped under the following five themes:

- Cycling and Walking (WCP)
- Bus services/facilities (BUP)
- Rail services/facilities (RAP)
- Highways (Traffic) and Parking (HPP), and
- Smarter Choices (SCP)

Issues, problems and opportunities have been given their own unique alphanumeric reference (e.g. Walking & Cycling Problems 1 = WCP1).

Further details on these problems and their impacts on the transport network are discussed within the previous sections in this Appendix.

Table 7.1: Problems and Issues Identified in the UTP Area

Walking & Cycling (WC)	
WCP1	Underpasses (particularly the Monarchs Way underpass) create movement barriers for pedestrians and cyclists and are unpleasant and unsafe (perceived problem)
WCP2	Poor east-west links for pedestrians and cyclists due to barrier created by railway lines and the A10
WCP3	Insufficient provision for pedestrians and cyclists to safely negotiate busy junctions and to cross busy roads
WCP4	Poor access to Lea Valley (lack of routes and safe crossing provisions across the railway line)
WCP5	Cycle routes are lacking and where they exist are in poor condition or at an inadequate standard not linking to key destinations (discontinuous, narrow, dangerous and poorly signed)
WCP6	Conflict between pedestrians and cyclists, particularly in/around town centres
WCP7	Insufficient cycle parking provisions at key destinations
WCP8	Cycle ban in Waltham Cross town centre
WCP9	Potential closures at rail crossings will create barriers to pedestrians and cyclists
WCP10	Relatively few people in the area walk or cycle either for regular journeys or for recreation.
WCP11	Level crossing provisions are inadequate, especially for the disabled and mobility impaired
WCP12	Accessibility to rail stations for those with impaired mobility is poor owing to lack of lifts.
WCP13	Proximity to general traffic and large vehicles makes walking and cycling unpleasant
WCP14	Inadequate promotion/publicity to encourage cycling (SCP1)
WCP15	No footway on Winston Churchill Way
Bus Services & Facilities (BU)	
BUP1	Illegal parking in bus lanes (HPP7)
BUP2	Capacity constraints at Waltham Cross bus station leads to congestion and safety concerns
BUP3	Low frequency of some bus services, in particular in the evenings and at weekends
BUP4	Travel to London is not fully integrated, both in terms of ticketing and services
BUP5	Inadequate services to other towns

BUP6	Inadequate services to hospitals
BUP7	Poor east-west links
BUP8	Poor integration of bus and rail services (RAP4)
BUP9	Quality of buses is perceived as being poor, particularly access to buses for the disabled and mobility impaired. (Currently 90%+ of buses are DDA compliant and all buses must meet this standard by 2017.)
BUP10	Lack of awareness of bus routes and timetables (SCP3)
BUP11	Bus stop infrastructure is substandard at some locations
BUP12	Limited bus services to Cheshunt rail station
BUP13	Bus fares are expensive compared to London
BUP14	Positioning of taxi rank at Waltham Cross causes congestion for buses at the bus station
BUP15	Low proportion of sustainable travel to Brookfield due to over-provision of parking and lack of bus services (HPP15)
BUP16	Poor bus reliability and journey times
BUP17	Poor positioning of bus stops (perceived problem)
Rail Services & Facilities (RA)	
RAP1	Substandard disabled access provision at rail stations
RAP2	Inadequate facilities and parking at Cheshunt and Waltham Cross rail stations (HPP10)
RAP3	Expansion of Cheshunt rail station car park is restricted by land ownership constraints and high cost (HPP14)
RAP4	Poor integration of bus and rail services (BUP8)
RAP5	Train services and facilities at Theobalds Grove rail station are substandard
RAP6	Fare system complicated and train fares are expensive
RAP7	Overcrowding of train services, particularly during peak periods
RAP8	Parking at Cheshunt and Waltham Cross rail stations is expensive (HPP17)
RAP9	Limited range of train services at some stations, particularly Theobalds Grove.
Highways (Traffic) & Parking (HP)	
HPP1	Congestion and parking around schools
HPP2	Congestion along main traffic corridors
HPP3	Congestion in town centres and at Brookfield Centre
HPP4	Localised congestion at key junctions

HPP5	Localised congestion due to poor positioning of bus stops
HPP6	Congestion due to illegal/unauthorised parking, bus lanes and traffic calming
HPP7	Illegal parking in bus lanes (BUP1)
HPP8	Road accidents and speeding along main roads in residential areas
HPP9	Commuter parking in residential areas near stations
HPP10	Inadequate and affordable parking facilities at Cheshunt and Waltham Cross rail stations (RAP2)
HPP11	Lack of signing to car parks
HPP12	Different parking management regimes lead to inconsistent provision of car parking and variations in charging inconsistent with user requirements.
HPP13	Insufficient car parking facilities at town centres.
HPP14	Expansion of rail station car parks is restricted by land ownership constraints (RAP3)
HPP15	Low proportion of sustainable travel to Brookfield due to over-provision of parking and lack of bus services (BUP15)
HPP16	Abuse of disabled parking bays
HPP17	Parking at Cheshunt and Waltham Cross rail stations is expensive (RAP8)
Smarter Choices (SC)	
SCP1	Lack of promotion/publicity to encourage cycling (WCP14)
SCP2	Insufficient focus on reducing the need to travel and encouraging greater use of sustainable modes of transport
SCP3	Lack of awareness of bus routes and timetables (BUP10)
SCP4	Limited number of schools with active school travel plans

7.3 Development of Transport Solutions

Proposed measures have been developed in response to national and LTP transport objectives and existing and problems, as well as those problems which are likely to be expected in the future. From the outset the focus has been on bringing forward practical measures that will contribute to the delivery of desired outcomes.

The further development and prioritisation of prospective measures included additional consultation with key officers and agencies, as well as site survey and development of outline scheme designs and cost.

Potential transport measures have been categorised under the following transport themes:

- Cycling and Walking (WC)

- Bus services/facilities (BU)
- Rail services/facilities (RA)
- Highways (Traffic) and Parking, (HP) and
- Smarter Choices (SC)

The underlying information on the development and assessment of prospective measures is referred to in the previous sections of this Appendix in relation to the key transport themes. Prospective measures that have been considered as not be feasible or beyond the remit of the UTP have not been taken forward into the prioritisation assessment framework. Some of these prospective solutions are proposed to be addressed through further studies or through inclusion within a policy framework.

7.4 Objectives and Indicators

Any potential solutions will need to be assessed in terms of their relevance to the County Council's transport objectives, as outlined in the Hertfordshire Local Transport Plan (LTP). The objectives contained in the LTP are designed to contribute towards an overarching number of shared priorities defined by the DfT. The nine LTP objectives and the shared priorities they come under are listed below in ***Table 7.2***;

Table 7.2 Hertfordshire County Council LTP Objectives

Shared Priority	LTP Objective
Safety	To improve safety for all by giving the highest priority to minimising the number of collisions and injuries occurring as a result of the transport system
Congestion	To obtain the best use of the existing network through effective design, maintenance and management
	To manage the growth of transport and travel volumes across the county, and thereby secure improvements in the predictability of travel time
	To develop an efficient, safe, affordable and enhanced transport system which is attractive, reliable, integrated and makes best use of resources
Accessibility	To develop a transport system that provides access to employment, shopping, education, leisure and health facilities for all, including those without a car and those with impaired mobility
	To ensure that the transport system contributes towards improving the efficiency of commerce and industry and the provision of sustainable economic development in appropriate locations
Air Quality	To mitigate the effect of the transport system on the built and natural environment and on personal health
Quality of Life	To raise awareness and encourage use of more sustainable modes of transport through effective promotion, publicity, information and education
	To reduce the need for the movement of people and goods through integrated land use planning the promotion of sustainable distribution and the use of telecommunications

The next level of aggregation from the shared priorities and objectives involves the setting of indicators to assess how proposed transport solutions may assist in achieving these objectives. The LTP lists 22 performance indicators and associated targets which reflect the County Council's transport objectives and are intended to be monitored during the lifetime of the plan. From this overall list, relevant LTP indicators have been identified against which proposed solutions in Cheshunt and Waltham Cross may be assessed.

The transport objectives and indicators in the LTP broadly reflect wider Community Strategy objectives and key challenges. They also broadly reflect BBC objectives as expressed in the emerging Core Strategy documents. However, it was considered that the existing LTP indicators could be enhanced by the addition of extra indicators, particularly under the "Quality of Life" heading to increase alignment with wider County Council and BBC policies and strategies and the government's key goals for transport set out in Delivering a Sustainable Transport System (DaSTS) published in November 2008 (http://www.dft.gov.uk/about/strategy/transportstrategy/dasts/dastsreport.pdf) which are as follows:

- to **support** national **economic** competitiveness and **growth**, by delivering reliable and efficient transport networks;
- to reduce transport's emissions of carbon dioxide and other greenhouse gases, with the desired outcome of **tackling climate change;**
- to **contribute to better safety, security and health** and longer life-expectancy by reducing the risk of death, injury or illness arising from transport, and by promoting travel modes that are beneficial to health;
- to **promote** greater **equality of opportunity** for all citizens, with the desired outcome of achieving a fairer society;
- to **improve quality of life** for transport users and non-transport users, and to promote a **healthy natural environment**.

The indicators that have been used for assessing priorities of transport measures are set out below in ***Table 7.3***:

Table 7.3 Objectives and Indicators

Objective Theme	Indicators
Safety	Speed Limit Compliance
Congestion	Journey Time per Mile
	Change in Area Wide Traffic Mileage
	Public Transport Patronage
	Bus Service User Satisfaction
	Bus Punctuality
	Mode Share of Journeys to School
	Right of Way
	Cycle Usage
Accessibility	Access to Hospitals
	Access to Employment
	Access to Public Transport
	Access to Town/ Local Centres

Air Quality Indicator	Air Quality
Quality of Life Indicator	Personal Security
	Rail related improvements
	Town Centre enhancement/ streetscape improvements
	Environmental Improvements, particularly for vulnerable road users
	Encourage use of sustainable modes through improved information

7.5 Additional Factors

In addition to indicators based on LTP and national transport priorities, there is also a need to consider local objectives and priorities relevant to the UTP that relate to the emerging policy framework for the Broxbourne area and outcomes from public consultation.

The Core Strategy for the district of Broxbourne will provide an overarching plan for the Borough but is yet to be published. However, the Borough of Broxbourne issued a Core Strategy Issues and Options paper in May 2007 (Borough of Broxbourne). The document highlighted a number of highway issues to be addressed in the core strategy.

- Access and parking around the Borough's rail stations;
- Access and parking provision in the Borough's town centres;
- Provision of a footbridge over the A10 in Cheshunt/Waltham Cross;
- Upgrading access in the vicinity of the proposed Olympic venue in Broxbourne; and
- Improving access and provision of a link road into Greater Brookfield.

The document also highlighted transport and movement objectives from the community plan:

- Seeking improvements in access to railway stations and rail services;
- Better co-ordination of bus and rail services;
- Provision for pedestrian and cycling routes along and across the A10;
- Improving linkages with the Lea Valley Park; and
- Measures to address areas with parking pressure.

These policy directions have been incorporated into the scheme assessment framework as the following criteria:

- Enhancing Environmental Sustainability
- Improving Health
- Improving Community Safety
- Improving town centres.

In order to identify the main transportation priorities as identified through the public consultation process, a scoring system was applied whereby each of the

priorities ranked 1st, 2nd and 3rd were awarded a score of 3, 2 and 1 respectively. Issues with the highest score were therefore regarded as most need of improvement, and are ranked in ***Table 7.4***, producing four public consultation priorities.

Table 7.4 Public Priorities

Facilities in most need of improvement (issues ranked 1st, 2nd and 3rd by respondents)		
Issue	**Cumulative Score (1st = 3 points for 2nd = 2 points 3rd = 1 point)**	**Rank**
A10 traffic -peak	51	1
A10/A121 junction-peak	38	=2
A10/M25 junction-peak	38	=2
Number of passengers on rail services	36	4
Ease of travel-car peak	35	5
Parking -Cheshunt Station	18	6
Bus frequency	16	7
A121 traffic-peak	13	8
Ease parking space-Cheshunt	11	9
Bus links Welwyn/Harlow/Enfield	10	=10
Bus reliability/journey times	10	=10
Quality-rail information	10	=10
Cycling/walking links Lea Valley	9	13
Ease of travel-car off peak	8	14
Integrated bus/rail services	7	=15
Monarch's Way roundabout	7	=15
Cycling and walking links to Town Centres	7	=15
Rail station accessibility-foot	7	=15
Links WX-Park Piazza/ Bury Green	6	19
Platform/station access-disabled/ non-car users	5	20
Quality-bus stop facilities	3	21
Parking quality-WX	2	=22
Parking-Theobalds Grove Station	2	=22
Ease of parking-WX	1	=24
Parking quality-Cheshunt	1	=24
Bus links-employment sites	1	=24

Emerging Public Consultation Priorities	
Priority	**Description**
1	Peak hour congestion, particularly affecting movement along the A10
2	Provision of adequate rail services and associated facilities, including parking and information
3	Bus service improvements in terms of routeing, frequency, reliability and provision of information
4	Parking in Cheshunt

7.6 Deliverability of Proposed Measures

As well as assessing potential schemes in terms of performance against key indicators, there also needs to be a process of assessing the practicalities of each scheme. This is a key task due to the fact that whilst a possible scheme may score highly against the relevant policy objectives it may not be feasible or deliverable on the ground. Schemes have therefore been assessed against the following criteria;

- Affordability
- Feasibility
- Deliverability

This assessment has contributed to consideration of the potential programming of schemes over the short (0-2 years), medium (3-5 years) and longer term (over 5 years). Where a scheme cannot be funded through the LTP (for example is outside the Hertfordshire county border), they have been identified for long term delivery.

7.7 Scoring and Ranking

The objectives and indicators have provided a basis for scoring each of the proposed transport measures. Scoring has been based on a qualitative assessment of the schemes. It is also important to highlight that some schemes may have a positive score or negative score against indicators. An example of this may be a new on carriageway cycleway, which may have a positive impact on accessibility but may have a negative effect on congestion. A 7 point scale from -3 through to +3, where 0 is considered a neutral impact has been used for scoring purposes.

Although largely qualitative, scores for Speed Compliance only refers to sites where the speed limit is 30mph. A score is given only where the 85th percentile speeds were above 35mph, to meet the LTP target. All other schemes were not scored against this target.

At the time of writing, the Quality of Life target had not been developed therefore scores were based on broad principles which improve quality of life.

Once the measures were scored against transport indicators, they have then been considered against the local policy framework, public priorities and deliverability assessment to provide an indication of priority for implementation. Some schemes may have a relatively low ranking but may have a low cost and effectively form part of a wider package of measures. Such schemes may therefore be proposed for delivery in the short. Other schemes may have a high ranking but funding or approval may depend on decision by third parties i.e. not be under the control of HCC or BBC. Such schemes may therefore be proposed for delivery in the medium or longer term.

Tables 7.5 and 7.6 demonstrate the assessment framework. Table 7.5 shows scoring against indicators and Table 7.6 shows schemes ranked in priority order based on scoring against indicators.

In the Scheme Assessment Framework provided in Table 7.5, main LTP indicators have been indicated in a darker shade of blue in the table headings; sub-indicators are indicated in a lighter shade of blue. Schemes are colour-coded by transport mode.

Table 7.5: Scheme Assessment Framework – Scoring Against Indicators

				Stage 1 - High level feasibility score				Stage 2 - Scoring against Indicators																							Stage 3 - Additional considerations								
Mode	**Scheme Ref**	**Transport Measure**	**Key Problems and Issues Cross Reference**	**Scheme Cost**	**Feasibility**	**Deliverability**	**Showstoppers (0 = Low Risk, 3 = High Risk)**	**Objective - Safety Indicator**	**Objective - Congestion Indicator**								**Objective - Accessibility Indicator**				**Objective - Air Quality Indicator**	**Objective - Quality of Life Indicator**					**Total Indicator Score**	**Public Consultation Priority**			**Local Objectives - Broxbourne BC Community Strategy**				**Potential funding source**	**Proposed Timescale - Short /Medium/ Long**
				Is the scheme affordable?	Is the scheme feasible for implementation?	Is the scheme deliverable?		Speed Limit Compliance	)Journey Time per Mile	Change in Area Wide Traffic Mileage	Public Transport Patronage	Bus Service User Satisfaction	Bus Punctuality	Mode Share of Journeys to School	Right of Way	Cycle Usage	Access to Hospitals	Access to Employment	Access to Public Transport	Access to Town/ Local Centres	Air Quality	Personal Security	Rail related improvements	Town Centre enhancement/ streetscape improvements	Environmental Improvements, particularly for vulnerable road users	Encourage use of sustainable modes through improved information		Congestion	Passenger Transport	Walking and Cycling	Enhancing Environmental Sustainability	Improving Health	Improving Community Safety	Improving Town Centres		
Cycling and Walking Schemes																																					
Cycle	WC01a	A121 Eleanor Cross Road Cycleway Final Phase (Linked to Olympic Site)	WCP4 WCP5 WCP10 WCP13	Y	Y	Y	0	x	1	1	0	0	0	0	0	2	0	2	0	2	1	0	0	0	0	1	**10**	✓		✓	✓	✓		✓	HCC LTP – Cycling (Build 2009/10), Olympic Delivery Authority, British Waterways, S106	S
Cycling/Walking	WC01b	A121 Eleanor Cross Road - Link to Cheshunt Station via Towpath (Linked to Olympic Site)	WCP4 WCP5 WCP10 WCP13	Y	Y	Y	0	x	1	1	0	0	0	0	3	3	0	1	1	0	1	1	1	0	1	1	**15**	✓		✓	✓	✓		✓	HCC LTP – Cycling, Olympic Delivery Authority, British Waterways, S106	S
Cycling/Walking	WC02	Footway/Cycleway on south side of Winston Churchill Way	WCP10 WCP13 WCP15	Y	Y	Y	0	x	1	1	0	0	0	1	0	2	0	2	0	3	1	1	0	0	1	1	**14**	✓		✓	✓	✓			BBC	S
Cycling/Walking	WC03	A10 Theobalds Lane Cycle/Footbridge	WCP2 WCP3 WCP10 WCP13	Y	Y	Y	0	x	2	1	0	0	0	3	3	3	0	1	0	1	2	0	0	0	1	1	**18**	✓		✓	✓	✓			BBC, Sustrans, S106	S
Cycling/Walking	WC04	A10 Cycle/Footbridge Link to St Mary's School	WCP5 HPP1 WCP4	Y	Y	Y	0	x	1	1	0	0	0	3	2	3	0	1	0	0	1	0	0	0	1	1	**14**	✓		✓	✓	✓			S106	S
Cycling/Walking	WC05	Theobalds Lane (east) improvements - cycleway and traffic calming measures - A10 to High Street	WCP5	Y	Y	Y	0	1	1	1	0	0	0	2	0	2	0	1	0	1	1	0	0	0	1	1	**12**	✓		✓	✓	✓			S106	S
Cycling/Walking	WC06a	Toucan Crossing of Winston Churchill Way at A10 roundabout	WCP3	Y	Y	Y	0	x	-1	1	0	0	0	2	0	3	0	1	0	0	1	0	0	0	1	1	**9**	✓		✓	✓	✓			S106	S

Cycling/Walking	WC06b	Winston Churchill Way to A10 Footbridge and Theobalds Lane	WCP5	Y	Y	Y	0	x	1	1	0	0	0	2	0	2	0	1	0	1	1	0	0	0	1	1	11	✓		✓	✓	✓			S106	S
Cycling/Walking	WC07a	Park Lane Cycle/Footway rail crossing	WCP9 WCP11	Y	Y	N	1	x	1	1	0	0	0	1	3	2	0	3	0	2	1	1	0	0	1	1	17	✓		✓	✓	✓			S106	S
Cycle-Walking	WC07b	Park Lane Bridleway crossing	WCP9 WCP11	Y	Y	N	1	x	1	1	0	0	0	1	3	2	0	3	0	2	1	1	0	0	1	1	17	✓		✓	✓	✓			S106	S
Cycling/Walking	WC08	Hurst Drive Primary School Initiative	WCP10 HPP1	Y	Y	Y	0	x	1	2	0	0	0	3	0	2	0	0	0	0	1	1	0	0	1	1	12	✓		✓	✓	✓			HCC Childrens Schools and Families	S
Cycling/Walking	WC09	Cycle Route – St Mary's School to Bury Green	WCP5	Y	Y	Y	0	1	0	1	0	0	0	3	1	2	0	0	0	0	1	1	0	0	0	1	11	✓		✓	✓	✓	✓		S106	S
Cycle	WC10	Signing of cycle Route Winston Churchill Way to Eleanor Cross Road	WCP5	Y	Y	Y	0	x	1	1	0	0	0	1	0	2	0	1	0	0	1	0	0	0	1	1	9	✓		✓	✓	✓			HCC LTP – Cycling	S
Cycling/Walking	WC11a	Signing improvements between Waltham Cross bus station and rail station	WCP1 WCP5 WCP12	Y	Y	Y	0	x	0	0	1	1	0	0	0	1	0	1	2	2	1	0	1	0	0	2	12	✓	✓	✓			✓		HCC LTP – Accessibility	S
Cycling/Walking	WC11b	Provision of toucan crossing across Monarchs Way	WCP1 WCP3 WCP12 BUP8/RAP4	Y	Y	Y	0	x	-1	0	1	0	0	0	0	1	0	2	2	2	0	1	0	1	0	0	9	✓	✓	✓	✓	✓	✓	✓	HCC LTP – Accessibility	S
Cycle	WC12a	Theobalds Lane/High Street Toucan Crossing	WCP3	Y	Y	N	1	x	-1	0	0	0	0	1	0	1	0	1	0	1	0	1	0	0	0	0	4	✓	✓	✓	✓	✓		✓	Sustrans	S
Cycle	WC12b	Signing of Cycle Route - Theobalds Grove to Lee Valley Park	WCP5	Y	Y	Y	0	x	0	1	0	0	0	3	1	2	0	0	2	1	1	0	0	0	1	1	13	✓		✓	✓	✓			Sustrans	S
Cycle	WC13	Signing of Cycle Route - Waltham Cross to Lee Valley Park	WCP4	Y	Y	Y	0	x	0	1	0	0	0	2	0	1	0	0	2	1	1	0	0	0	1	1	10	✓		✓	✓	✓			Sustrans	S
Cycle	WC14	Cycle Route - Theobalds Grove to Cheshunt Station	WCP5	Y	Y	Y	0	x	1	1	0	0	0	2	0	3	0	1	1	1	1	0	1	0	1	1	14	✓	✓	✓	✓	✓			Sustrans	S
Cycle	WC15	Signing of Park Lane to Waltham Cross Town Centre	WCP5 WCP8	Y	Y	Y	0	x	1	1	1	0	0	1	0	1	0	2	1	2	1	0	0	1	1	0	13	✓		✓	✓	✓		✓	HCC LTP – Accessibility	M
Cycling/Walking	WC16	Completion of Winston Churchill Way to M25	WCP5	Y	Y	N	1	x	0	1	0	0	0	0	0	1	0	2	0	0	1	0	0	0	0	1	6	✓		✓	✓	✓			S106	L
Cycling/Walking	WC17a	New River Cycle/Footway Phase 1 - Theobalds Lane to College Road	WCP5 WCP13	Y	Y	N	1	x	1	1	0	0	0	2	3	3	0	1	0	0	1	0	0	0	1	1	14	✓		✓	✓	✓			HCC LTP – RoW or Cycling, S106	M
Cycling/Walking	WC17b	New River Cycle/Footway Phase 2 - College Road to Church Lane	WCP5 WCP13	Y	Y	N	1	x	1	1	0	0	0	2	3	3	0	1	0	0	1	0	0	0	1	1	14	✓		✓	✓	✓			HCC LTP – RoW or Cycling	M
Cycling/Walking	WC17c	New River Cycle/Footway Phase 3 - Church Lane to Brookfield Centre	WCP WCP13	Y	Y	Y	0	x	1	1	0	0	0	2	3	3	0	1	0	1	1	1	0	0	1	1	16	✓		✓	✓	✓			HCC LTP – RoW or Cycling	L
Cycle	WC18	Signing of Cycle routes - Goff's Oak to Cheshunt Station east-west route	WCP5 WCP13	Y	Y	Y	0	x	1	1	0	0	0	2	1	3	0	1	1	1	1	0	1	0	1	1	15	✓		✓	✓	✓		✓	HCC LTP – Cycling, S106	L

Cycle	WC19	Signing of Cycle route - Hammondstreet to Rosedale linking with Goff's Oak to Cheshunt rail station route	WCP5	Y	Y	Y	0	x	1	1	0	0	0	2	0	1	1	1	3	1	1	0	0	0	1	1	14	✓	✓	✓	✓	✓			HCC LTP – Cycling	L
Cycle	WC20	Cycle enhancements in B176 corridor	WCP5	Y	Y	Y	0	x	1	1	0	0	0	2	0	3	0	1	0	1	1	0	0	0	2	0	12	✓		✓		✓		✓	HCC LTP – Cycling	M
Cycle	WC21	Signing of Cycleway Link to Enfield from Waltham Cross via Enfield Greenways	WCP5	Y	Y	Y	0	x	1	1	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	6			✓	✓	✓			HCC LTP – Accessibility	M
Cycle	WC22	Signing of cycleway Waltham Cross Town Centre to Abbey Road Roundabout	WCP5 WCP8	Y	Y	Y	0	x	1	1	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	6		✓	✓	✓	✓		✓	HCC LTP – Accessibility	S
Cycling/Walking	WC23	Provision of additional CCTV at Monarchs Way Subway	WCP1	Y	Y	Y	0	x	0	0	0	0	0	0	0	1	0	2	2	2	0	3	0	1	0	0	11		✓	✓		✓	✓	✓	BBC	S
Cycling/Walking	WC24	Enhancements to Monarchs Way Subway - Landscaping/Lighting & Walkways	WCP1	Y	Y	Y	0	x	0	0	0	0	0	0	0	2	0	2	2	2	0	3	0	2	2	0	15		✓	✓		✓	✓	✓	BBC, HCC LTP – Accessibility, S106	S
Walking	WC25	Abbey Road footway	WCP5	Y	Y	Y	0	x	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	5	✓		✓	✓	✓		✓	BBC	S
Cycling/Walking	WC26	Publish a walking/cycling leaflet and information on HCC and BBC web sites	WCP10 BUP10/SCP3 WCP14/SCP1 SCP2	Y	Y	Y	0	x	1	1	0	0	0	1	2	2	0	1	1	1	1	1	0	0	0	3	15	✓		✓		✓	✓		BBC	S
Walking	WC28	Hammondstreet pedestrian crossing	WCP3	Y	Y	Y	0	0	-1	0	0	0	0	1	0	0	0	1	0	3	0	1	0	0	3	1	9			✓	✓	✓	✓		BBC	S
Walking	WC29	Milne Close Roundabout pedestrian improvements	WCP3	Y	Y	Y	0	0	0	0	0	0	0	0	1	0	0	2	0	3	0	1	0	0	3	1	11			✓	✓	✓	✓		S106	S
Cycling/Walking	WC30	Brookfield Lane West toucan crossing	WCP3	Y	Y	Y	0	0	-1	0	0	0	0	1	1	2	0	2	0	3	0	1	0	0	3	1	13			✓	✓	✓	✓		S106	M
Rail Schemes																																								
Rail	RA01	Waltham Cross Rail Station - Implement Phase 2 of BBC Car Park Expansion scheme	RAP2/HPP10	Y	Y	Y	0	0	0	0	2	0	0	0	0	0	0	2	2	0	0	0	3	0	0	1	10		✓						BBC	S
Rail	RA02	Waltham Cross Rail Station - Improve internal pedestrian link between Network Rail car park and station building	RAP2/HPP10 RAP3/HPP14	Y	Y	Y	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	1	1	0	1	0	6		✓						DfT, HCC, BBC, S106 (subject to costings, priorities and funding)	L
Rail	RA03	Waltham Cross Rail Station - Provide lifts for access to southbound platform	RAP1	N	Y	N	2	0	0	0	1	0	0	0	0	0	0	1	3	0	0	1	3	0	3	0	12		✓						DfT, HCC, BBC, S106 (subject to costings, priorities and funding)	M
Rail	RA04	Waltham Cross Rail Station - Provide new station building with level access	RAP1	Y	Y	N	1	0	0	0	2	0	0	0	0	0	0	2	2	0	0	1	3	0	1	0	11		✓						DfT, HCC, BBC, S106 (subject to costings, priorities and funding)	M
Rail	RA05	Waltham Cross Rail Station - Remodel station frontage and provide drop off facility	RAP2/HPP10 RAP3/HPP4 RAP8	Y	Y	N	1	0	0	0	1	0	0	0	0	0	0	1	2	0	0	1	2	1	1	0	9	✓	✓						DfT, HCC, BBC, S106 (subject to costings, priorities and funding)	M

Rail	RA06	Waltham Cross Rail Station - Provide upgraded passenger waiting areas with improved seating	RAP2/HPP10	Y	Y	N	1	0	0	0	2	0	0	0	0	0	0	1	2	0	0	2	3	0	1	0	11		✓						DfT, HCC, BBC, S106 (subject to costings, priorities and funding)	M
Rail	RA07	Waltham Cross Rail Station - Improve CCTV coverage within station, to include monitoring of cycle parking facilities.	RAP2/HPP10	Y	Y	N	1	0	0	0	1	0	0	0	0	0	0	1	2	0	0	3	2	0	1	0	10		✓	✓			✓		D DfT, HCC, BBC, S106 (subject to costings, priorities and funding)	M
Rail	RA08	Waltham Cross Rail Station - Improve customer real time information	RAP2	Y	Y	Y	0	0	0	0	1	0	0	0	0	0	0	1	2	0	0	1	2	0	1	2	10		✓						DfT, HCC, BBC, S106 (subject to costings, priorities and funding)	M
Rail	RA09	Waltham Cross Rail Station - Provide improved cycle storage facilities	RAP2/HPP10	Y	Y	Y	0	0	0	1	1	0	0	0	0	2	0	1	2	0	0	0	1	0	0	0	8		✓	✓	✓				DfT, HCC, BBC, S106 (subject to costings, priorities and funding)	M
Rail	RA10	Cheshunt Rail Station - Provision of longer platforms to accommodate longer trains	RAP7	N	Y	Y	1	0	1	1	3	0	0	0	0	0	0	3	3	0	2	0	3	0	0	0	16		✓						Network Rail	M
Rail	RA12	Theobalds Grove Rail Station - Provide lifts to platforms	RAP1 RAP5	N	Y	N	2	0	0	0	1	0	0	0	0	0	0	1	3	0	0	1	3	0	3	0	12		✓						To be confirmed	L
Rail	RA13	Theobalds Grove Rail Station - Improve station building and passenger waiting areas	RAP1 RAP5	N	Y	N	2	0	0	0	2	0	0	0	0	0	0	1	2	0	0	2	3	0	1	0	11		✓						To be confirmed	L
Rail	RA14	Theobalds Grove Rail Station - Provide CCTV coverage of the station and cycle storage	RAP5	Y	Y	N	1	0	0	0	1	0	0	0	0	0	0	1	2	0	0	3	2	0	1	0	10		✓				✓		To be confirmed	M
Rail	RA15	Theobalds Grove Rail Station - Improve customer real time information	RAP5	Y	Y	Y	0	0	0	0	1	0	0	0	0	0	0	1	2	0	0	1	2	0	1	2	10		✓						To be confirmed	M
Rail	RA16	Theobalds Grove Rail Station - Environmental improvements to Theobalds Grove rail station	RAP5	Y	Y	Y	0	0	0	0	2	0	0	0	0	0	0	0	3	1	0	1	2	0	2	1	12		✓		✓				BBC	S
Bus schemes																																				
Bus	BU01	Provide more information on county services at Waltham Cross bus station through provision of journey planning maps and more accessible electronic passenger information points	BUP10/SCP3 BUP4	Y	Y	Y	0	x	0	0	1	2	0	0	0	0	0	0	1	2	2	1	0	0	0	3	12		✓		✓				HCC PTU	S
Bus	BU02	Study - Provide bus priority facilities and signalisation at Monarchs Way roundabout	BUP16 HPP4	N	Y	N	2	x	-1	0	3	3	3	0	0	0	0	1	1	2	0	0	0	0	0	0	12	✓	✓		✓				HCC LTP – Bus punctuality, accessibility, user satisfaction, patronage	L
Bus	BU03	Modify existing bus services to directly serve Waltham Cross rail station (working with bus operators)	BUP8/RAP4	Y	Y	N	1	x	0	1	3	2	0	0	0	0	0	1	3	0	1	0	2	0	0	0	13		✓		✓				n/a	M

Bus	BU04	Provide an additional bus stop facility at Waltham Cross rail station to allow additional bus services to call there	BUP8/RAP4	Y	Y	N	1	x	0	1	3	2	0	0	0	0	0	1	3	0	1	0	2	0	0	0	**13**		✓		✓				S106, HCC LTP – Bus patronage, accessibility	M
Bus	BU05	Increase frequency and range of bus service stopping at Cheshunt Station (working with bus operators)	BUP8/RAP4 BUP12 RAP2/HPP10 RAP8/HPP17 HPP9	Y	Y	N	1	x	1	1	2	2	0	0	0	0	0	2	2	0	1	0	2	0	0	0	**13**	✓	✓					✓	To be confirmed	M
Bus	BU06	Provide real time bus information and electronic passenger information points at bus stops starting with those most heavily used. (Stops at The Pond, Theobalds Grove rail station, Waltham Cross bus station and Brookfield Centre)	BUP10/SCP3 BUP11	Y	Y	Y	0	x	0	0	2	3	1	0	0	0	0	1	2	1	1	1	0	0	0	3	**15**		✓						HCC PTU	M
Bus	BU07	Provide bus real time information on the HCC web site	BUP10	N	Y	Y	1	x	0	0	1	2	0	0	0	0	0	1	2	0	0	0	0	0	0	3	**9**		✓		✓				HCC PTU	M
Bus	BU11	Provide improved east-west bus services in the Cheshunt area (working with bus operators)	BUP7	N	Y	N	2	x	1	1	2	2	0	0	0	0	0	1	3	2	1	0	0	0	0	0	**13**	✓	✓						HCC PTU	L
Bus	BU12	Provide minimum half hourly bus services from all parts of the area to Brookfield Centre (working with bus operators)	BUP15/HPP15	N	Y	N	2	x	1	1	3	3	0	0	0	0	0	1	3	2	1	0	0	0	0	0	**15**	✓	✓		✓				S106, to be confirmed	L
Bus	BU13	Support and promote the hospital hopper	BUP6	Y	Y	Y	0	x	0	1	0	0	0	0	0	0	3	0	2	0	0	0	0	0	0	0	**6**	✓	✓		✓	✓			HCC PTU	M
Bus	BU16	Provision of bus shelter at Cheshunt rail station	BUP8/RAP4 BUP11	Y	Y	Y	0	0	0	0	2	2	0	2	0	0	0	0	0	0	0	1	1	0	0	0	**8**		✓						HCC PTU	S
Bus	BU17	Implementation of public transport facilities in line with Brookfield Masterplan	BUP11 BUP17	Y	Y	Y	0	0	1	1	2	1	1	2	0	1	0	1	2	2	0	0	0	2	2	1	**19**	✓	✓						S106	L
Smarter Choices schemes																																				
Sustainable	SC01	Develop Travel Smart – Rolling out the scheme across the area by wards	WCP10 BUP10/SCP3 WCP14/SCP1 SCP2	Y	Y	Y	0	x	1	2	1	0	0	1	0	2	0	1	2	1	2	0	1	0	0	3	**17**	✓	✓	✓	✓				Sustrans, HIIS, BBC	S
Sustainable	SC02	Develop a car sharing scheme covering the Cheshunt and Waltham Cross area	HPP1 HPP2 HPP3 HPP4 SCP2	N	Y	Y	1	x	1	2	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	1	**7**	✓			✓				To be confirmed	L
Sustainable	SC03	Ensure residents in the area receive information on smarter choices and sustainable modes on an annual basis	WCP14/SCP1 BUP10/SCP3 SCP2	Y	Y	Y	0	x	1	1	1	0	0	1	1	1	0	1	1	1	1	0	1	0	0	3	**14**	✓	✓	✓	✓	✓			Sustrans, HIIS, BBC	S
Highways and Parking schemes																																				

Highway	HP01	Improved lining at Monarchs way roundabout	HPP4	Y	Y	Y	0	x	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	**3**	✓	✓				✓		HIIS	S
Highway	HP02	Provide CCTV and VMS signing A10 (M25 - Church Road, on approaches to Cheshunt and M25) providing information on congestion	HPP2 HPP4	N	Y	Y	1	x	2	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	**5**	✓							HIIS	L
Highway	HP06	Eleanor Cross taxi parking provision	BUP14	Y	Y	Y	0	x	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	**2**	✓							BBC	S
Highway	HP07	Roundel High Street Improvements	HPP3	Y	Y	Y	0	x	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	**3**	✓						✓	BBC	S
Highway	HP09	Goffs Lane speed reduction scheme	HPP8	Y	Y	Y	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**						✓		HCC LTP – Speed Compliance	M
Highway	HP10	College Road / Cromwell Road Roundabout Improvements	HPP9	Y	Y	Y	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**						✓		To be confirmed	S
Highway	HP11	Traffic calming along Brookfield Lane West	HPP8	Y	Y	Y	0	3	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	2	0	**9**			✓			✓		S106	M
Highway	HP12	Church Lane Shops Access Improvements	HPP8 HPP9	Y	Y	Y	0	0	1	0	0	0	0	0	0	0	0	0	1	0	3	1	1	0	0	1	1	**9**	✓		✓	✓		✓		HCC LTP – Accessibility	M
Highway	HP13	Rosedale Way/Fairfield Primary Safe Routes to School scheme	HPP8	Y	Y	Y	0	3	0	1	0	0	0	3	0	1	0	1	0	1	0	1	0	0	3	3	**17**			✓	✓	✓	✓		HCC LTP – Mode Share to School	S
Studies																																				
Bus	BU14	**Study** - Work with BBC, TfL and other bus operators to investigate capacity and layover issues at Waltham Cross bus station	BUP2	N	Y	N	2	x	0	1	2	3	0	0	0	0	0	1	2	3	0	1	0	1	1	2	**17**		✓					✓	To be confirmed	M
Highway	HP14	**Study** - Investigation of A121 route strategy including revised junction at Monarchs Way roundabout	HPP2 HPP4	Y	Y	Y	0	x	1	-1	0	0	0	0	0	0	0	1	0	1	0	0	0	3	1	0	**6**	✓							HIIS, S106	S
Highway	HP15	**Study** - Investigate masterplan for Cheshunt town centre to include a revised junction arrangement at the Pond to enable more space to be given over to pedestrians and additional short stay parking for the centre	WCP6 HPP3 HPP13	Y	Y	Y	0	x	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	3	1	0	**6**	✓						✓	HIIS	M
Highway	HP16	**Study** - Investigation of traffic management strategies for the A10, including signalisation of A121 junction.	HPP2 HPP4	Y	Y	Y	0	x	2	0	0	0	0	0	0	0	0	1	0	1	0	0	0	3	1	0	**8**	✓							HIIS	S
Highways	HP18	**Study** – Investigate transport measures to support Brookfield Riverside development	WCP6 HPP£ HPP13	Y	Y	Y	0	x	0	0	1	0	0	2	0	2	0	3	2	2	0	0	0	2	2	0	**16**	✓	✓	✓	✓		✓	✓	S106	S

Table 7.6 Ranked List of Schemes

Scheme Type	Scheme Ref.	Scheme Description	Key Problems and Issues Cross Reference	Score
Bus	BU17	Implementation of public transport facilities in line with Brookfield Masterplan	BUP11 BUP17	19
Cycling/Walking	WC03	A10 Theobalds Lane Cycle/Footbridge	WCP2 WCP3 WCP10 WCP13	18
Cycling/Walking	WC07a	Park Lane Cycle/Footway rail crossing	WCP9 WCP11	17
Cycling/Walking	WC07b	Park Lane Bridleway crossing	WCP9 WCP11	17
Sustainable	SC01	Develop Travel Smart – Rolling out the scheme across the area by wards	WCP10 BUP10/SCP3 WCP14/SCP1 SCP2	17
Highway	HP13	Rosedale Way/Fairfield Primary Safe Routes to School scheme	HPP8	17
Bus	BU14	**Study** - Work with BBC, TfL and other bus operators to investigate capacity and layover issues at Waltham Cross bus station	BUP2	17
Cycling/Walking	WC17c	New River Cycle/Footway Phase 3 - Church Lane to Brookfield Centre	WCP WCP13	16
Rail	RA10	Cheshunt Rail Station - Provision of longer platforms to accommodate longer trains	RAP7	16
Highway	HP18	**Study** – Investigate transport measures to support Brookfield River	WCP6 HPP3 HPP13	16
Cycling/Walking	WC01b	A121 Eleanor Cross Road - Link to Cheshunt Station via Towpath (Linked to Olympic Site)	WCP4 WCP5 WCP10 WCP13	15
Cycle	WC18	Signing of Cycle routes - Goff's Oak to Cheshunt Station east-west route	WCP5 WCP13	15
Cycling/Walking	WC24	Enhancements to Monarchs Way Subway - Landscaping/Lighting & Walkways	WCP1	15
Cycling/Walking	WC26	Publish a walking/cycling leaflet and information on HCC and BBC web sites	WCP10 BUP10/SCP3 WCP14/SCP1 SCP2	15

Scheme Type	Scheme Ref.	Scheme Description	Key Problems and Issues Cross Reference	Score
Bus	BU06	Provide real time bus information and electronic passenger information points at bus stops starting with those most heavily used. (Stops at The Pond, Theobalds Grove rail station, Waltham Cross bus station and Brookfield Centre)	BUP10/SCP3 BUP11	15
Bus	BU12	Provide minimum half hourly bus services from all parts of the area to Brookfield Centre (working with bus operators)	BUP15/HPP15	15
Cycling/Walking	WC02	Footway/Cycleway on south side of Winston Churchill Way	WCP10 WCP13 WCP15	14
Cycling/Walking	WC04	A10 Cycle/Footbridge Link to St Mary's School	WCP5 HPP1 WCP4	14
Cycle	WC14	Cycle Route - Theobalds Grove to Cheshunt Station	WCP5	14
Cycling/Walking	WC17a	New River Cycle/Footway Phase 1 - Theobalds Lane to College Road	WCP5 WCP13	14
Cycling/Walking	WC17b	New River Cycle/Footway Phase 2 - College Road to Church Lane	WCP5 WCP13	14
Cycle	WC19	Signing of Cycle route - Hammondstreet to Rosedale linking with Goff's Oak to Cheshunt rail station route	WCP5	14
Sustainable	SC03	Ensure residents in the area receive information on smarter choices and sustainable modes on an annual basis	WCP14/SCP1 BUP10/SCP3 SCP2	14
Cycle	WC12b	Signing of Cycle Route - Theobalds Grove to Lee Valley Park	WCP5	13
Cycle	WC15	Signing of Park Lane to Waltham Cross Town Centre	WCP5 WCP8	13
Cycling/Walking	WC30	Brookfield Lane West toucan crossing	WCP3	13
Bus	BU03	Modify existing bus services to directly serve Waltham Cross rail station (working with bus operators)	BUP8/RAP4	13
Bus	BU04	Provide an additional bus stop facility at Waltham Cross rail station to allow additional bus services to call there	BUP8/RAP4	13
Bus	BU05	Increase frequency and range of bus service stopping at Cheshunt Station (working with bus operators)	BUP8/RAP4 BUP12 RAP2/HPP10 RAP8/HPP17 HPP9	13
Bus	BU11	Provide improved east-west bus services in the Cheshunt area (working with bus operators)	BUP7	13

Scheme Type	Scheme Ref.	Scheme Description	Key Problems and Issues Cross Reference	Score
Cycling/Walking	WC05	Theobalds Lane (east) improvements - cycleway and traffic calming measures - A10 to High Street	WCP5	12
Cycling/Walking	WC08	Hurst Drive Primary School Initiative	WCP10 HPP1	12
Cycling/Walking	WC11a	Signing improvements between Waltham Cross bus station and rail station	WCP1 WCP5 WCP12	12
Cycle	WC20	Cycle enhancements in B176 corridor	WCP5	12
Rail	RA03	Waltham Cross Rail Station - Provide lifts for access to southbound platform	RAP1	12
Rail	RA12	Theobalds Grove Rail Station - Provide lifts to platforms	RAP1 RAP5	12
Rail	RA16	Theobalds Grove Rail Station - Environmental improvements to Theobalds Grove rail station	RAP5	12
Bus	BU01	Provide more information on county services at Waltham Cross bus station through provision of journey planning maps and more accessible electronic passenger information points	BUP10/SCP3 BUP4	12
Bus	BU02	Study - Provide bus priority facilities and signalisation at Monarchs Way roundabout	BUP16 HPP4	12
Cycling/Walking	WC06b	Winston Churchill Way to A10 Footbridge and Theobalds Lane	WCP5	11
Cycling/Walking	WC09	Cycle Route – St Mary's School to Bury Green	WCP5	11
Cycling/Walking	WC23	Provision of additional CCTV at Monarchs Way Subway	WCP1	11
Walking	WC29	Milne Close Roundabout pedestrian improvements	WCP3	11
Rail	RA04	Waltham Cross Rail Station - Provide new station building with level access	RAP1	11
Rail	RA06	Waltham Cross Rail Station - Provide upgraded passenger waiting areas with improved seating	RAP2/HPP10	11
Rail	RA13	Theobalds Grove Rail Station - Improve station building and passenger waiting areas	RAP1 RAP5	11
Cycle	WC01a	A121 Eleanor Cross Road Cycleway Final Phase (Linked to Olympic Site)	WCP4 WCP5 WCP10 WCP13	10

Scheme Type	Scheme Ref.	Scheme Description	Key Problems and Issues Cross Reference	Score
Cycle	WC13	Signing of Cycle Route - Waltham Cross to Lee Valley Park	WCP4	10
Rail	RA01	Waltham Cross Rail Station - Implement Phase 2 of BBC Car Park Expansion scheme	RAP2/HPP10	10
Rail	RA07	Waltham Cross Rail Station - Improve CCTV coverage within station, to include monitoring of cycle parking facilities.	RAP2/HPP10	10
Rail	RA08	Waltham Cross Rail Station - Improve customer real time information	RAP2	10
Rail	RA14	Theobalds Grove Rail Station - Provide CCTV coverage of the station and cycle storage	RAP5	10
Rail	RA15	Theobalds Grove Rail Station - Improve customer real time information	RAP5	10
Cycling/Walking	WC06a	Toucan Crossing of Winston Churchill Way at A10 roundabout	WCP3	9
Cycle	WC10	Signing of cycle Route Winston Churchill Way to Eleanor Cross Road	WCP5	9
Cycling/Walking	WC11b	Provision of toucan crossing across Monarchs Way	WCP1 WCP3 WCP12 BUP8/RAP4	9
Walking	WC28	Hammondstreet pedestrian crossing	WCP3	9
Rail	RA05	Waltham Cross Rail Station - Remodel station frontage and provide drop off facility	RAP2/HPP10 RAP3/HPP4 RAP8	9
Bus	BU07	Provide bus real time information on the HCC web site	BUP10	9
Highway	HP11	Traffic calming along Brookfield Lane West	HPP8	9
Highway	HP12	Church Lane Shops Access Improvements	HPP8 HPP9	9
Rail	RA09	Waltham Cross Rail Station - Provide improved cycle storage facilities	RAP2/HPP10	8
Bus	BU16	Provision of bus shelter at Cheshunt rail station	BUP8/RAP4 BUP11	8
Highway	HP16	**Study** - Investigation of traffic management strategies for the A10, including signalisation of A121 junction.	HPP2 HPP4	8
Sustainable	SC02	Develop a car sharing scheme covering the Cheshunt and Waltham Cross area	HPP1 HPP2 HPP3 HPP4 SCP2	7

Scheme Type	Scheme Ref.	Scheme Description	Key Problems and Issues Cross Reference	Score
Cycling/Walking	WC16	Completion of Winston Churchill Way to M25	WCP5	6
Cycle	WC21	Signing of Cycleway Link to Enfield from Waltham Cross via Enfield Greenways	WCP5	6
Cycle	WC22	Signing of cycleway Waltham Cross Town Centre to Abbey Road Roundabout	WCP5 WCP8	6
Rail	RA02	Waltham Cross Rail Station - Improve internal pedestrian link between Network Rail car park and station building	RAP2/HPP10 RAP3/HPP14	6
Bus	BU13	Support and promote the hospital hopper	BUP6	6
Highway	HP14	**Study** - Investigation of A121 route strategy including revised junction at Monarchs Way roundabout	HPP2 HPP4	6
Highway	HP15	**Study** - Investigate masterplan for Cheshunt town centre to include a revised junction arrangement at the Pond to enable more space to be given over to pedestrians and additional short stay parking for the centre	WCP6 HPP3 HPP13	6
Walking	WC25	Monarchs Way (Abbey Road) footway	WCP5	5
Highway	HP02	Provide CCTV and VMS signing A10 (M25 - Church Road, on approaches to Cheshunt and M25) providing information on congestion	HPP2 HPP4	5
Cycle	WC12a	Theobalds Lane/High Street Toucan Crossing	WCP3	4
Highway	HP01	Improved lining at Monarchs way roundabout	HPP4	3
Highway	HP07	Roundel High Street Improvements	HPP3	3
Highway	HP09	Goffs Lane speed reduction scheme	HPP8	3
Highway	HP06	Eleanor Cross taxi parking provision	BUP14	2
Highway	HP10	College Road / Cromwell Road Roundabout Improvements	HPP9	1

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