Shorncliffe Garrison Masterplan

Annex 1 - Transport Strategy

Ministry of Defence

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CONTENTS

1.0 Introduction

The purpose of this Technical Annex is to support the Shorncliffe Garrison Masterplan issued in draft to Shepway District Council (SDC) in March 2011.

The Masterplan sets out how development of the site will contribute to meeting housing and regeneration needs in the area delivering enhanced open space (including sports pitches), around 1,200 new dwellings and enhanced provision of community facilities over the next 20 years.

Within the Masterplan a description is provided of the movement network, baseline evidence of the existing transport provision in the area and a sustainable Movement Strategy developed to enhance pedestrian / cycle connectivity, improve public transport connections, promote road safety and improve the operational efficiency of key links and nodes on the surrounding highway network.

This Technical Annex builds upon the initial draft Masterplan providing further detailed evidence in respect of the following:

- Smarter Choices (**Section 2**) - details of the emerging principles for the establishment of a site-wide Travel Plan network;

- Accessible Development (**Section 3**) - further details in respect of the sustainable Movement Strategy focussing on pedestrian / cycle links, public transport and on-site layout considerations;

- Trip Generation (**Section 4**) - details of the derivation of residential and non-residential trip rates / generation by all modes of travel plus the effect of trip internalisation as well as trips generated by existing permitted uses;

- Highways Impact (**Section 5**) - details of methodologies adopted in terms of future year assessment, background traffic growth, the impact of car borne traffic on key links / modes plus details of suggested mitigation measures.

Finally the Technical Annex is summarised (Section 6) with a table outlining the potential package of off-site highway works and sustainable transport infrastructure to support the Masterplan proposals.

2.0 Smarter Choices

Travel Planning

The Shorncliffe Garrison Masterplan Strategic Site will deliver real incentives to encourage people to change their travel behaviour and to sustain these changes over the long term.

Effective measures or smarter choices will be indentified to achieve an overall goal of reducing the impact of traffic generated by the development and to improve accessibility. As a consequence future occupiers of the development will have:

- Better access to essential services and jobs;
- Improved travel options;
- Opportunities for a healthier lifestyle; and
- A vibrant community to live in.

The masterplan development will deliver a Travel Plan network that draws upon a suite of techniques such as the implementation of car clubs, car sharing schemes, travel awareness campaigns / promotional strategies (inc. discounted travel vouchers), broadband internet access / home deliveries and personalised travel planning.

Such measures will be underpinned by taking advantage of the sustainable location of the development in terms of its proximity to facilities and services as well as physical improvements to the built environment through enhanced infrastructure for pedestrians, cyclists and public transport users.

The Travel Plan will be an organic document that will grow and develop as land is released for the phased development. Measureable targets and over-riding objectives will be continuously monitored and reviewed over the lifetime of the Plan.

The Travel Plan will be a "*long-term management strategy for an occupier or site that seeks to deliver sustainable transport objectives through positive action and is articulated in a document that is regularly reviewed*" DfT – Good Practice Guideline: Delivering Travel Plans through the Planning Process – April 2009

To ensure that the future community understands what a travel plan is, how it contributes to their life and how they will benefit from it is an integral part of the emerging strategy.

Neighbourhood Community Interest Company (CIC)

As part of the delivery of the masterplan development proposals the opportunity would exist to establish a community governance and management structure. This could include a management company to look after the maintenance of the infrastructure and 'common

parts' (or "hardware") and a CIC to primarily address community governance and promoting sustainable lifestyle choices (or "software").

It is envisaged that within such a structure the CIC could take on the ownership role of the travel plan working with the management company and other stakeholders to facilitate the implementation of measures.

Aims & Objectives

The Travel Plan will be built upon foundation principles that highlight, inform and make both residents and other future occupiers aware of how their travel choices can have a local, regional and national impact. The benefits to implementing the Travel Plan are considered to be:

- Less motorised vehicles on the road network; improving air quality, noise levels and congestion;
- Greater number of pedestrians and cyclists, aided by improved pedestrian / cyclist infrastructure;
- Greater social and environmental awareness. Every 1000 miles travelled by bicycle/on foot rather than car 0.31 tonnes less carbon is emitted;
- Journey times by sustainable modes are often more predictable;
- Tackling heath issues, moving away from the reliance on car journeys;
- Boosting local economy, reducing the need to travel distances for daily goods

The objectives of the Travel Plan will be to focus on a range of activities to improve journeys to the site and to inform the targets to be set within the Action Plan that in turn will assist in identifying and evaluating success. With this in mind the key objectives are as follows:

- To encourage both residents and other future occupiers to take a lead in embracing the aims of the Travel Plan to reduce demand for parking by car sharing or using alternative modes of travel where it is practically possible recognising the limitations of differing hours of employment, social activities etc;
- To seek an overall reduction in the number of single-occupancy car trips by residents and other future occupiers;
- To reduce congestion thereby improving road safety and minimising the effects in terms of emissions, noise and visual intrusion;
- To encourage the use of alternative modes of travel;
- To continue to raise awareness of environmental issues, especially those which impact on personal health and involve transport matters amongst residents and other future occupiers.

Ultimately these objectives will be linked to SMART targets (Specific, Measurable, Appropriate, Realistic and Timed).

Roles & Responsibilities

To ensure the effectiveness of implementing the Travel Plan and to secure its on-going success a Travel Plan Coordinator would be appointed, likely to be from within the CIC. The Travel Plan Coordinator would be responsible for the implementation, communication, monitoring and management of the defined aims and objectives. The responsibilities of the Travel Plan Coordinator would be to:

- Oversee the development and implementation of the Travel Plan;
- Raise awareness of the Travel Plan through implementing and promoting effective marketing campaigns through a range of media including the potential for a site-wide web-site, regular newsletters / leaflet drops etc.;
- Organising the necessary surveys or other data collection exercises required to develop / review the Travel Plan;
- Act as the point of liaison with external organisations;
- Coordinate the monitoring programme for the Travel Plan including the setting of targets and review dates;
- Providing additional communication support, referencing and detailing; and
- Control the budget for the development of the Travel Plan to ensure its efficient and effective use.

Communication

The success of the Travel Plan will rely on the involvement and integration of the community. The Travel Plan Coordinator will need to ensure that the principles and initiatives within the Travel Plan are fully understood and will act as the first point of contact for any Travel Plan related issues or queries. Continual monitoring of the Travel Plan document will need to be a progressive and staged process.

The Travel Plan Coordinator will also need ensure that residents and future occupiers are given the opportunity to feedback on the success or otherwise of schemes implemented within the Plan. This will be important in ensuring that the community feels involved and can

take ownership of the Plan and its processes. Issues arising from any communications would need to be recorded by the Travel Plan Coordinator to be provided as part of a Travel Plan Review Report, the results of which can be shared with the Council and other interested parties (as appropriate).

Promotional material, both in paper and digital formats, will need to be continually used, to highlight the Travel Plan initiatives. The Community Hub as well as the communal areas will play a key role in displaying and distributing information. Promotional material will need to include advice on the appropriate channels for raising specific transport-related matters, encouraging the community to contact the Travel Plan Coordinator for liaison with the appropriate authorities.

Residents and future occupiers will also need to be made aware of any changes to Travel Plan initiatives through the various media outlets and through the CIC.

Primarily it is envisaged that the Travel Plan would be web-based which will allow monitoring, updates and any further initiatives / actions to be posted. Recipients would be able to sign up for email updates, whereby if any travel information is updated or modifications are made to the Travel Plan the information can be quickly relayed to all.

A web forum could also be introduced on the Travel Plan website to provide the community with a further information resource to ask questions about particular functions of the Travel Plan or if they have any queries or initiatives which they feel they could add to the Travel Plan process.

The web-based initiatives would encourage the community to become involved within the Travel Plan, understanding the importance and helping shape the evolving organic document. Ultimately these combined measures would allow the Travel Plan to become an effective and fully functioning document that would evolve into the fabric of the community.

Monitoring

A programme of monitoring and review will need to be implemented to generate information by which the success of the Travel Plan can be evaluated. Monitoring and review would be the responsibility of the Travel Plan Coordinator for reporting purposes. Information gathered through the monitoring process would be recorded for input to the review process. The type of monitoring measures outlined below incorporates both the collection of 'hard' analytical data and 'soft' data in the form of general feedback and correspondence.

To establish the travel patterns within the future community travel questionnaires would need to be regularly issued to both residents and other occupiers, structured to provide a robust level of information from which comparative assessments of travel demand can be made but also to encourage recipients to detail any ideas or comments they may have on the success or otherwise of the Travel Plan. In addition and as part of the monitoring process the Travel Plan Coordinator would seek to:

- Record comments from the community and where possible establish the perceived level of demand for services;
- Monitor the effective use of the movement infrastructure within the community, i.e. footway / footpath routes, cycleways, traffic circulation routers and communal parking areas;
- Monitor the level of usage of public cycle parking areas to establish demand and any requirement to increase provision;
- Monitor usage of the Car Club operation that would be established as part of the development ensuring that the operator provides data on the uptake of the scheme periodically;
- Liaise with local public transport operators to establish level of demand for local services.

Administration

Administration of the Travel Plan involves the maintenance of necessary systems, data and paperwork, consultation and promotion. These duties would be specific to the Travel Plan Coordinator in the interests of confidentiality and would include the regular updating of the Travel Plan document as well the monitoring and updates where required, to the Travel Plan website.

Specifically the Travel Plan Coordinator would be required to maintain:

- Details of travel patterns derived from the regular Travel Questionnaires and retained for input to the review process;
- Feedback from the monitoring procedures maintained for input to the review process;
- Retain copies of historic review reports retained for reference purposes and for analysis of the longer term effectiveness of the Travel Plan;
- Maintain a correspondence file to keep all communications made in respect of the on-going management of the Travel Plan;
- Maintain a record of travel related incidents, meetings, comments and general observations of the Travel Plan Coordinator and the CIC to be retained for input to any review process.

Review

It is evident that the Travel Plan is a strategy that will evolve over time. The key objective of the Plan is to 'educate' the community and to facilitate travel by sustainable modes. This will not change however, it may be possible over time to define or re-define specific targets.

The Travel Plan would therefore be the subject of a regular review process in order to measure its success or otherwise and to identify the potential for improvements to the physical and management travel initiatives being offered.

A vital element of the review process is the re-issuing of the Travel Questionnaire. Although the travel database would be regularly updated, the re-issue of the Travel Questionnaire to the community will offer the opportunity to gather new information about wider attitudes to travel. Analysis of the Travel Questionnaire would also yield up to date information for comparison with data derived at the introduction of the Travel Plan. The re-issuing of the Travel Questionnaires would be supported by further publicity through mediums such as the website, web forum and / or regular newsletters, posters and flyers.

The Travel Plan Coordinator would then compile a Review Report on a regular basis incorporating the following:

- Details of any changes within the development over the time period that could affect travel patterns;
- An outline of the monitoring processes undertaken, as well as analysis of the results from data collection exercises in terms of performance against targets/milestones set within preceding period;
- Direct feedback from the community;
- Identification of corrective actions, if required, and timetable for implementation; and
- Details of new or revised targets/milestones and Travel Plan related activities for the following period.

The Review Report would be made available to the Council and key stakeholders, free of charge.

Sustainable Travel Initiatives

The type of physical and management measures that are to be incorporated within Travel Plan will, as far as is possible, be designed to be suitable for review and monitoring and are therefore adaptive to future changes in travel habits / patterns.

Community Website

A community website would be established that would be accessible to all and contain information regarding public transport access, services, routes and prices. In addition further

information would be provided regarding suitable walking and cycle routes within the local area includes links to key local services and amenities.

The website would also provide hyperlinks with details of relevant contact addresses, telephone numbers and on-line web-sites including those administered by Shepway District Council, public transport operators, cycle forums and local taxi companies.

The website would be continually monitored to ensure that all information provided is up to date. It is proposed that alerts to any changes in the information contained within the website would also be publicised on a community Facebook page as well as, if recipients wish, by email.

The Travel Plan Coordinator would also ensure that concise travel information is made available to visitors in advance of them travelling to the site through the web-site, by promotional flyer or e-mail. Similar details could also be made available in the Community hub.

Car Club

A Car Club facility within the site will enable residents and other future occupiers to hire a vehicle, when required, on a flexible basis. Typically a Car Club works on a pre-bookable basis providing a new vehicle to prospective users without the typical costs of car ownership, maintenance, insurance and general running costs. As well as an initial membership fee additional costs are covered by users for mileage covered (typically around 22p per mile).

As well as providing private cars, Car Club operators now provide other types of vehicle such as short wheel-based vans for hire that can be particularly convenient to prospective users for a range of tasks and further assist in reducing the requirement for private car ownership. Car Club facilities are also not exclusive to members of a community within a new development. Other existing residents and employees within the local catchment area can also take advantage of the benefits accrued from membership of the Car Club facility.

Electric Charging Points

The Travel Plan Coordinator in conjunction with the CIC and management company would seek to ensure that with new dwellings and in publically accessible parking areas the opportunity is taken up where applicable to provide external power sources for the charging of electrically powered vehicles. The Travel Plan Coordinator would then monitor use of any facilities provided and assess whether additional power outlets are required in the future.

Cycling Initiatives

Promoting cycling as a key mode of sustainable travel is key to encouraging a modal shift away from cars being the dominant form of transport. The masterplan development has a range of cycling infrastructure deliverables that would be phased over the lifetime of the development, including cycle friendly access points to the development, improvements to external infrastructure as well as the provision of accessible, secure and covered cycle parking spaces.

Furthermore local bicycle hire shops would be advertised on the community website. Through consultation opportunities would also be explored to provide a framework for offering incentive or discount purchase schemes for the community to further encourage cycling.

The Travel Plan Coordinator would also initiate a cycling forum through the community website, allowing cyclists of all abilities to share information and advice raising awareness of cycling as a viable alternative means of transport for many journeys, both for work and leisure.

Public Transport Initiatives

To maximise the potential usage of public transport the Travel Plan Coordinator in conjunction with the CIC would work closely with public transport operators to provide the requisite infrastructure and services. In so doing the key to the success of public transport as a viable mode of travel would be to ensure that:

- Services are frequent and punctual to match the travel demands of the community for a range of journey purposes;
- Boarding points are convenient to the areas of population that they serve and that both bus stop infrastructure and vehicles facilitate step free access;
- That vehicles used on routes serving the site are modern encompassing new technologies on comfort, noise and emissions as well as the provision of passenger waiting facilities designed to reduce crime and the fear of crime incorporating appropriate safety features, lighting and comfort;
- That marketability of maximised through the use of easily distinguishable vehicles branded to reflect the service being provided as well as comprehensive and accurate information for passengers concerning services and facilities.

The Travel Plan Coordinator in conjunction with the CIC and public transport operators would also explore the potential for offering discounted travel vouchers to new residents and other future occupiers for a time limited period after completion of purchase or occupation.

Personalised Sustainable Travel Planning

The Travel Plan Coordinator in conjunction with the CIC could provide personalised sustainable travel planning sessions for residents or other future occupiers within the community at their request. The service would provide a tailored travel planning service for the individual, highlighting the most sustainable transport choices for long and short distance journeys.

Targets

The aims and objectives of a Travel Plan is to increase awareness of more sustainable travel options and to encourage their use, with the objective of reducing demand for private car-based travel. The monitoring and review programmes put in place will enable the progress of the Travel Plan to be checked in the context of specific targets.

In order to achieve the aims and objectives of the Travel Plan a clear framework of targets and milestones in the form of both short and long term objectives will need to be set in the form of an Action Plan. The Action Plan would then be reviewed by the Travel Plan Coordinator prior to any review to check performance and identify the need for any corrective actions that may need to be put in place for the following period. An updated Action Plan would then be published as part of the Review Report.

The predominant indicator of the success of a Travel Plan is generally considered to be a change in the modal split of trips to and from the site with a greater proportion of trips by non-car modes and a reduction in the number of single occupancy vehicles.

From the SDC Transport Strategy Spreadsheet Model Report the modal split for trips generated by the Strategic Sites for modelling purposes has been based upon TEMPRO data. Table 2.1 provides a summary of the baseline modal split for trips adopted for modelling purposes together with an initial set of targets that could be set to achieve the aims and objectives of the Travel Plan.

Table 2.1 Preliminary Travel Plan Targets

Mode of Travel	Transport Strategy TEMPRO Modal Split	Preliminary Target Modal Split
Walk	26.4%	20%
Cycle	1.8%	5%
Car Driver	43.5%	40%
Car Passenger	23.5%	25%
Public Transport	4.8%	10%
Combined	100%	100%

3.0 Accessible Development

The Shorncliffe Garrison Masterplan Strategic Site provides an opportunity to deliver a sustainable Movement Strategy that would be developed in the context of current planning policy. Key guiding principles at the core of the Movement Strategy include:

- A balanced approach between the various road user functions;
- The promotion of road safety;
- Sustainability – minimising impact on the environment;
- Integration with the local community promoting accessibility by non-car modes of travel;
- Operational efficiency on the local and strategic networks.

Pedestrian and cycle links

Walking and cycling are good for health, for the continued active use of public spaces and for society in general and therefore freedom of movement for pedestrians and cyclists both within and through the Shorncliffe Garrison Masterplan Strategic Site should be given utmost priority. It will be imperative to create a high quality environment for both pedestrians and cyclists that provide direct connections to origins and destinations within the developable area and beyond, that are permeable, coherent, safe and reflect desire lines of movement without deviation.

Connectivity between the Shorncliffe Garrison Masterplan Strategic Site and adjoining areas will also be a significant element of the development of a well planned pedestrian and cycle network. The physical and perceptual barriers of the local topography, particularly to the south and the west of the masterplan site as well as the London - Folkestone railway line should not be restrictive in further developing an interconnected network.

Long distance recreational paths and cycle routes exist in the vicinity of the Shorncliffe Garrison Masterplan Strategic Site and yet these existing networks are, to a certain extent indistinguishable and not well connected. It will therefore be important to protect and enhance these existing routes, provide the missing links and ensure that any new infrastructure is linked in with the internal network of pedestrian and cycle routes within the Shorncliffe Garrison Masterplan Strategic Site.

Legibility will also be a key consideration in the delivery of a pedestrian and cycle access strategy and the provision of key landmarks as well as easy to understand signage will be important elements.

The National Cycle Network Route 2 (NCN2) extends westwards along the seafront to the south of masterplan area passing along the A259 Seabrook Road. NCN2 extends along the south coast from Dover and Folkestone in an easterly direction to Hythe, Dymchurch and St Mary's Bay in a westerly direction. To the north the Regional Cycle Route 17 (RCR17) extends from the A20 Ashford Road, adjacent to the Eurotunnel terminal northwards in the direction of Canterbury.

Horn Street and Church Road are also designated as recommended cycle routes (NCR2) with signposts direction cyclists in the direction of the Eurotunnel terminal and Folkestone town centre.

In terms of footway provision on the surrounding highway network, the following is noted:

B2063 North Road – footway on northern side of carriageway only, limited street lighting;

B2063 West Road - footway on western side of carriageway only, reasonable street lighting;

Royal Military Avenue – good provision of footways on both sides of the carriageway and good street lighting;

Pond Hill Road – a narrow footway on western side of carriageway only, narrow footway on eastern side of carriageway past Cricket Ground up to junction with B2063 North Road, street lighting limited / poor;

Church Road – good standard of footways on both sides of the carriageway (apart from short section on southern side to the east of Pond Hill Road), good street lighting;

Horn Street – footway on eastern side of the carriageway only, separate pedestrian bridge over Folkestone – Ashford railway line, reasonable street lighting.

Provision of formal pedestrian crossing points on the surrounding road network is limited to push-button controls at the Horn Street / Cheriton High Street junction, close to the Tesco foodstore. On the remainder of the network there are a number of locations where informal dropped kerb crossing with tactile paving are provided however it is noted that the B2063 North Road, West Road and Pond Hill Road lack provision of safe crossing facilities.

There is also an extensive Public Right of Way (PROW) network in the vicinity of the masterplan area with a combination of off-carriageway designated footpaths and bridleways.

The key bridleway PROW's in the vicinity of the masterplan area are as follows:

- South-west from St Martin's Plain towards Dibgate Camp;
- The Elham Valley Way (leading from the A20 Ashford Road at the Eurotunnel terminal south towards Cliff Road, Hythe directly past the eastern boundary to Dibgate Camp); and

- Sandy Lane (south from the B2063 West Road, past the Military Cemetery to Hospital Hill – close to its junction with the A259 Seabrook Road).
- The PROW footpath network in the vicinity of masterplan site includes:
- A route from Pond Hill Road (adjacent to the POL and Stores) westwards to Valebrook Close & Horn Street;
- A route leading westwards from the Pond Hill Road / B2063 North Road junction to Horn Street;
- A route leading south-westwards from the B2063 West Road, past the Military Cemetery to Horn Street; and
- A route leading northwards from Church Lane to the A20 Cheriton High Street over the Folkestone – Ashford railway line.

The approach is to encourage the use of these modes both to and within the Shorncliffe Garrison Masterplan Strategic Site and this will be achieved by combining the provision of new and improved infrastructure for pedestrians and cyclists with the use of targeted information on travel choices, the positive health benefits and recreational opportunities within the Travel Plan process.

In overall terms the primary aims of the Movement Strategy in terms of walking and cycling are to:

- Provide a continuous network;
- Maximise convenience by ensuring that all routes are direct and reflect desire lines of movement without deviation;
- Ensure that usable, comfortable places are created and that crossing places are level;
- Make routes clear and easy to follow with good sightlines and signage;
- Create spaces that are safe, active and accessible to all.

It is important that the environment for pedestrians and cyclists is properly planned, not only to provide the physical infrastructure, maximise the permeability and freedom of movement, but also to ensure that pedestrians feel safe and secure. The Movement Strategy will therefore promote and create a connected, safe, convenient and attractive environment that encourages walking and cycling through and within the Shorncliffe Garrison Masterplan Strategic Site.

Crime and the fear of crime can deter people from making trips, especially those by means other than the private car. In this regard pedestrian and cycle activity should be concentrated on active street frontages as opposed to the provision of segregated footways / footpaths and cycleways. Rear access to buildings should be avoided wherever possible.

The street layout therefore needs to be designed to take into account peoples' concerns about crime, for example by providing routes that are well lit with a clear view ahead, avoiding blind spots where people may hide. High quality street lighting and the provision of CCTV at particular locations will also go a long way to appeasing peoples' concerns.

In the development of a quality environment for pedestrians and cyclists, desire lines of movement should not be inhibited and the spaces created should feel comfortable and usable through the provision of good sightlines.

Convenient walking and cycling routes need to connect people to the places they want to go. The concept of a "walkable neighbourhood" within interconnected street patterns is also an important consideration in the development of the Movement Strategy i.e. the daily needs of people within the area such as work, play, education and shopping are within walking distance to negate the need to use the car.

Any barriers to freedom of movement for pedestrians and cyclists through the Shorncliffe Garrison Masterplan Strategic Site and beyond need to be minimised. Guard-railing should be avoided within any element of the road network.

Key elements of the strategy are to:

- Provide strong east-west and north-south pedestrian and cycle routes through the development, along green corridors.
- Improve footpath routes across the Backdoor Training Area down into the Seabrook Valley.
- Upgrade the pedestrian bridge over the railway line at Horn Street.
- Upgrade the route between Royal Military Avenue and Cheriton High Street, across the railway line, with CCTV, new paving and lighting.
- Upgrade Shorncliffe Road as a key cycle route between the masterplan area, Folkestone West rail station and the town centre.

All pedestrian and cycle routes will be legible with good surface treatment, visibility, sightlines, lighting and signage, taking account of DDA requirements.

These key routes could comprise the enhancement of the existing infrastructure or possible new infrastructure where such provision does not exist at present. In addition the potential future uses on the site could deliver improved crossing facilities at key points of conflict on the surrounding local roads.

Along these routes consideration will be given to any requirement to provide specific infrastructure for cyclists, particularly at crossing points. It is envisaged however that the nature and function of these corridors over time will be such that they are conducive to cycling without the need to provide dedicated infrastructure.

It is anticipated that where cycling on carriageways may be unattractive to less experienced cyclists, for example on main road corridors and on some main streets, then off street provision may be appropriate. This should take the form of a shared use footway/cycleway and should be at least 2.5 metres wide but may need to be significantly wider on NCN / NCR routes and where pedestrian and cycle flows are likely to be heavy.

Cycle parking is also a key deliverable within the Movement Strategy in encouraging greater use of this mode of travel as an attractive alternative to the use of the private car. As well as secure, covered provision within individual developments to the required SDC standards consideration will also need to be given to the provision of short stay cycle parking within publically accessible areas. Such facilities need to be carefully designed to ensure that they are secure, thereby reducing the potential for crime. It is also considered that the Community Hub could be an ideal place in which to establish a cycle hire facility / cycle workshop for residents and other community members.

To meet the needs of disabled people, the public realm areas within the need to ensure the provision of the following:

- Gradients kept to a minimum of 5% (8% where landings are provided);
- Drop / flush kerbs and tactile surfaces at appropriate locations;
- Handrails / guardrails on ramps and locations of high conflict;
- Minimal provision of street furniture and where it is required, it should be carefully sited;
- Use of seating at appropriate locations;
- Colour contrasting of street furniture and clear signing;
- Audible signals and tactile devices at crossing facilities.

The development of a signage strategy will be an essential part of the walking and cycling strategy. Innovative signage and mapping can provide visitors with information on both distance and time between key origins and destinations within the Shorncliffe Garrison Masterplan Strategic Site and beyond.

Public Transport

The overall aspiration in relation to public transport access within the Movement Strategy for the Shorncliffe Garrison Masterplan Strategic Site is to maximise connectivity with surrounding bus and rail networks and ensure that walk distances to / from public transport connections are minimised.

The importance of interchange in developing a cohesive public transport network should not be underestimated and in this regard discussions with the operators will be focussed on ensuring that good bus/rail interchange at Folkestone West and Folkestone Central stations is maintained and enhanced.

Currently there are 3 no. bus routes operated by Stagecoach that directly serve the Shorncliffe Garrison Masterplan Strategic Site. These are:

- **Route 71/72/73** along Church Road, to Folkestone West & Central rail stations, the town centre, East Cliff and Creteway Down. This is a high frequency route with up to 8 buses per hour.
- **Route 77** along Military Road / North Road and Royal Military Avenue, to Folkestone West rail station and the town centre – buses run once per hour.
- **Route 160** along Horn Street, to the town centre and Hythe – buses run every 90 minutes.

In terms of connections to the rail network Folkestone West station is some 1.8kms east from the heart of the masterplan site. Folkestone West station is served by Southeastern 'High Speed' and 'Mainline' services with 3 no. trains per hour, Monday to Friday (additional peak services) and 2 no. trains per hour on Saturdays and Sundays.

Journey times to key destinations are shown in Table 3.1.

Table 3.1 Rail Connections to Folkestone West Station

High Speed		**Mainline**	
Destination	**Journey Time**	**Destination**	**Journey Time**
Ashford International	13 mins.	**Ashford International**	17 mins.
Dover Priory	16 mins.	**Ramsgate**	51 mins.
Ebbsfleet International	34 mins.	**Tonbridge**	58 mins.
Stratford International	46 mins.	**Sevenoaks**	67 mins.
St Pancras International	53 mins.	**London Bridge**	92 mins.

The key principles to be adopted in the Movement Strategy for the development of a successful bus network to serve the future development are considered to be:

Frequency – i.e. the provision of regular services throughout the day, seven days-a-week to match potential demand including co-ordination and interchange with other public transport services.

Reliability – i.e. punctual operation with prioritisation of road space and infrastructure improvements to ensure that an efficient service can be provided.

Convenience – i.e. boarding points that are located close to the development areas they serve provided with step-free access to cater for all members of the community and journey times that are attractive and offer a realistic alternative to a private car journey.

Attractiveness – i.e. modern vehicles encompassing new technologies on comfort, noise and emissions as well as passenger waiting facilities designed to reduce crime and the fear of crime incorporating appropriate safety features, lighting and comfort.

Marketability – i.e. easily distinguishable vehicles branded to reflect the service being provided as well as comprehensive and accurate information for passengers concerning services and facilities.

The bus network should be developed around the provision of a Quality Bus Corridor that provides high frequency connecting routes linking the existing town centre bus station, the railway stations and key locations within the local area.

Initially the routeing of bus services would need to be based upon the existing road pattern however it could be adapted to reflect future street patterns as development proposals emerge.

To maximise the profile of the proposed connecting routes there would be a significant benefit from adopting a distinguishable branding to be consistently applied to passenger service vehicles, passenger waiting facilities, timetabling and marketing information.

To further maximise the potential success of the Movement Strategy public transport solution it will be necessary to implement a strong marketing campaign to support the routes and services provided. A distinguishable corporate image will assist greatly in the promotion of the routes and services making them instantly identifiable to passengers. Timetable information for the specific routes serving the site plus connections to other bus and rail services would also be made available through a community website and other medium such as mobile phone apps and in paper form as leaflets / booklets.

In terms of bus stop infrastructure, to minimise walk distances between land uses within the development as well as to avoid unnecessary delays to passenger service vehicles it is recommended that boarding points would be located at least every 400 metres. It is also envisaged that all boarding points would be provided with high quality passenger waiting facilities that incorporate real-time passenger information.

- The location of boarding points would be determined by the need to:
- Ensure that they are safe and convenient for passenger to access the facilities;
- Avoid the movement of buses to/from the boarding point being hindered by parked vehicles;

- Provide a balance between the provision of natural surveillance yet avoid intrusion to neighbouring frontages, particularly residential.

It is envisaged that all boarding points within the proposed development could be provided with a raised boarding platform that aligns the kerbside with the floor of the passenger service vehicle using contrasting materials, to make getting on and off the bus easier, particularly for the mobility impaired.

On-Site Layout

The Kent Design Guide (2005/06) and the more recently published Manual for Streets (2007) / Manual for Streets 2 (2010) set the framework for key principles to be applied to the internal layout of the development.

In developing the road hierarchy it is necessary to recognise that roads and streets fulfil a variety of functions. For example, road corridors play a vital role in the distribution of motor traffic on essential business both to and through a given area whereas localised streets serve many purposes in terms of access to buildings and public spaces for all road users.

Often the main function of a road or street is reflected by the way in which it is used. The function of a road or street is successful when it meets the needs and requirements of the people who use it.

Overall an efficient street network should deliver good quality places that are:

- Attractive;
- Well connected and permeable to encourage walking and cycling to local destinations;
- Able to encourage activity thereby improving personal security and safety.

Within the overall hierarchy, local streets are corridors that have important functions beyond just the movement of traffic, i.e. multi-functional spaces that are integrated with their surroundings and where pedestrians and cyclists are afforded greater priority than vehicular traffic. In creating the multi-functional space the type of surface materials to be used, hard and soft landscaping and street furniture all have a significant role.

High quality urban design will be a key feature of the local street network where corridors are defined by the buildings and structures surrounding them as opposed to the more traditional approach of first constructing roads and fitting everything else around them.

Within the overall dimension of local streets the use of kerblines is minimised and that when it is safe to do so, all functions and activities are delineated into various function/activity zones through the use of changes to surface materials, landscaping and street furniture.

The local street network is interconnected such that 'dead end' routes are avoided to engender freedom of movement and permeability. On-street parking could also be a feature on local streets to promote security and vitality provided that is designed sensitively to minimise visual intrusion and ensure that safety is maintained.

Junction design on the local street network will be made to fit the space between buildings / features. Dimensions are determined by the need to prioritise direct pedestrian desire lines and parameters are set by the use of swept path analysis.

The control of vehicle speed within the local street network is essential in order to protect the more vulnerable road users such as pedestrians and cyclists. The local street network will therefore be designed to incorporate natural speed attenuation.

Within the development fire appliances will be able to reach within 45 metres of any residential dwelling and the maximum carry distance for refuse collection will be 25 metres.

The key aim of the main street network will be to provide transition between the local streets and the main road corridors. The main street network will facilitate the safe and operationally efficient movement of all types of vehicles including HGV's and buses.

The design parameters for the main street network will take full account of the statutory requirements for horizontal / vertical alignment, junction spacing, sight stopping distances and visibility splays appropriate for the characteristics and function of the road however such requirements are considered to be less onerous than that for the main road corridors.

In terms of provision for non-motorised users, the main street network will, where possible, be provided with wide pedestrian zones on both sides of the running carriageway. Segregated facilities for cyclists are not considered to be a requirement on the main street network.

In all areas consideration will be given to the use of quality hard and soft landscaping along the main street network in order to provide an environment conducive to safe and pleasant routes for pedestrians and cyclists. Crossing points will be provided at regular intervals along the main street network, particularly where key desire lines of movement intersect vehicular routes.

All crossing points on the main street network will be provided at-grade, the type of crossing being dependent upon detailed analysis of pedestrian, cyclist and vehicular demand. Where uncontrolled facilities are implemented, good inter-visibility and street lighting will be provided.

4.0 Trip Generation

An assessment of the potential trip generational characteristics of the Shorncliffe Garrison Masterplan Strategic Site has been undertaken. For consistency the methodology as adopted in the SDC Transport Strategy Spreadsheet Model Report (prepared by the consultants Scott Wilson for the Council and dated January 2011) has been used.

As agreed with SDC, the County Council and the Highways Agency in the preparation of the Spreadsheet Model Report (SMR), the trip rates for the residential uses within the Shorncliffe Garrison Masterplan Strategic Site are calculated using the industry standard software programme TEMPRO (dataset 5.4) as this allows both mode and journey purpose to be considered. Non-residential trip rates are calculated using TRICS (version 2009b).

Residential Trip Rates

Tables 4.8 and 4.9 within the SMR set out home-based trips by journey purpose for both the weekday AM Peak period (0700-1000 hrs) and PM Peak period (1600-1900 hrs) within the Shepway (Authority) area for the year 2026, i.e. the final year of the Core Strategy and LDF.

The journey purposes include home based educational trips, work trips, social trips (i.e. holidays, recreation and visiting friends / relatives), personal business trips and shopping trips. Tables 4.8 and 4.9 of the SMR then express trip rates per household as 'origins' and 'destinations'.

For the purpose of this technical Annex Tables 4.1 and 4.2 below provides a summary of the combined home based origins and destinations for each journey purpose and mode of travel for the weekday AM and PM peak periods derived from the data contained within the SMR.

Table 4.1 AM Peak Combined Trip Rate per Household by Journey Purpose & Mode of Travel

Mode	Education	Work	Social	Personal Business	Shopping	Combined
Walk	0.13	0.05	0.05	0.02	0.05	0.30
Cycle	0.00	0.02	0.00	0.00	0.00	0.02
Car Driver	0.05	0.32	0.06	0.02	0.04	0.49
Car Passenger	0.10	0.07	0.04	0.01	0.03	0.25
Bus / Coach	0.03	0.02	0.00	0.00	0.00	0.05
Rail	0.00	0.01	0.00	0.00	0.00	0.01

Combined	0.33	0.47	0.15	0.04	0.13	1.12

Table 4.2 PM Peak Combined Trip Rate per Household by Journey Purpose & Mode of Travel

Mode	Education	Work	Social	Personal Business	Shopping	Combined
Walk	0.03	0.05	0.10	0.04	0.09	0.31
Cycle	0.00	0.02	0.00	0.00	0.00	0.02
Car Driver	0.02	0.27	0.12	0.02	0.08	0.51
Car Passenger	0.02	0.06	0.10	0.03	0.08	0.29
Bus / Coach	0.00	0.02	0.02	0.00	0.01	0.05
Rail	0.00	0.00	0.00	0.00	0.00	0.00
Combined	0.08	0.42	0.34	0.10	0.27	1.18

The SMR also provided details of the assumed proportional split of arrivals and departures in the AM and PM peak periods for the combined trip rates that was based upon an interrogation of analogous sites within the TRICS database (Table 4.10).

This showed that in the AM peak period the combined trip rate was split into 31% arrivals and 69% departures and that in the PM peak period the combined trip rate was split into 64% arrivals and 36% departures. Using these details Table 4.3 below provides a summary of the weekday AM and PM peak arrival and departure trip rates adopted for the purpose of this Technical Annex.

Table 4.3 Weekday Arrival / Departure Trip Rates per Household by Mode of Travel

Mode	AM Peak			PM Peak		
	Combined	Arrivals (31%)	Departures (69%)	Combined	Arrivals (64%)	Departures (36%)
Walk	0.30	0.09	0.21	0.31	0.20	0.11
Cycle	0.02	0.01	0.01	0.02	0.01	0.01
Car Driver	0.49	0.15	0.34	0.51	0.33	0.18
Car Passenger	0.25	0.08	0.17	0.29	0.19	0.10
Bus / Coach	0.05	0.02	0.03	0.05	0.03	0.02

Rail	0.01	0.00	0.01	0.00	0.00	0.00
Combined	1.12	0.35	0.77	1.18	0.76	0.42

Non-Residential Trip Rates

The Shorncliffe Garrison Masterplan Strategic Site makes provision for an element of mixed use development including the following non-residential uses:

- A two form entry primary school; and
- A community hub that could include a healthcare facility and small convenience retail provision centred around the retention of the Tower Theatre.

As outlined within the SMR trip rates for non-residential uses within the SDC Transport Strategy have been based upon data derived from the TRICS database (Table 4.11) although these are for vehicular trips only. For the purpose of this Technical Annex multi modal trip rates for each of the proposed land uses have been derived from the latest version of the TRICS database (v2011(a)) using analogous sites to that proposed.

Full details of the TRICS output files are included as Appendix 1 and a summary of the weekday AM and PM peak trip rates for non-residential uses are provided in Tables 4.4, 4.5 and 4.6.

Table 4.4 Weekday Arrival / Departure Trip Rates per 100sqm by Mode of Travel - Primary School

Mode	**AM Peak**			**PM Peak**		
	Combined	**Arrivals**	**Departures**	**Combined**	**Arrivals**	**Departures**
Walk	18.09	16.37	1.72	0.60	0.12	0.48
Cycle	0.08	0.04	0.04	0.00	0.00	0.00
Car Driver	9.90	8.62	1.28	0.56	0.12	0.44
Car Passenger	0.00	0.00	0.00	0.24	0.00	0.24
PT User	1.04	0.92	0.12	0.00	0.00	0.00
Combined	29.11	25.95	3.16	1.40	0.24	1.16

Table 4.5 Weekday Arrival / Departure Trip Rates per 100sqm by Mode of Travel - Doctors

Mode	AM Peak			PM Peak		
	Combined	Arrivals	Departures	Combined	Arrivals	Departures
Walk	3.51	2.11	1.40	1.77	0.84	0.93
Cycle	0.25	0.17	0.08	0.17	0.06	0.11
Car Driver	6.88	4.47	2.41	5.37	2.08	3.29
Car Passenger	0.42	0.36	0.06	1.43	0.45	0.98
PT User	0.23	0.20	0.03	0.48	0.25	0.23
Combined	11.29	7.31	3.98	9.22	3.68	5.54

Table 4.6 Weekday Arrival / Departure Trip Rates per 100sqm by Mode of Travel - Local Shops

Mode	AM Peak			PM Peak		
	Combined	Arrivals	Departures	Combined	Arrivals	Departures
Walk	9.64	4.94	4.70	7.11	3.52	3.59
Cycle	0.18	0.11	0.07	0.25	0.11	0.14
Car Driver	8.15	4.16	3.99	9.43	4.68	4.75
Car Passenger	1.69	0.84	0.85	2.54	1.27	1.27
PT User	0.06	0.04	0.02	0.11	0.04	0.07
Combined	19.72	10.09	9.63	19.44	9.62	9.82

Residential Trip Generation

As outlined within the main body of the Shorncliffe Garrison Masterplan the proposed residential development will be released in phases as MOD land becomes available over the Core Strategy and Local Development Framework period.

In total it is proposed to accommodate up to 1,195 new homes within the Shorncliffe Garrison Strategic Site although some 195 new homes will be provided beyond the end of the Core

Strategy / LDF period, i.e. beyond 2026. Given that the SDC Transport Strategy only extends up to 2026 this Technical Annex specifically considers the phased development to be developed / released during the Core Strategy / LDF period, i.e. up to 1,000 new homes.

During the Core Strategy / LDF period it is envisaged that there would be 3 no. phases of development within the Shorncliffe Garrison Masterplan Strategic Site, as detailed below:

- **Phase 1 (2013 - 2016) - 280 new homes**
  - Site 1.1: Northern Training Area (38 homes);
  - Site 1.2: Nursery (12 homes);
  - Site 1.3: St Martin's Plain (100 homes);
  - Site 1.4: Risborough Barracks (stadium site) (130 homes)

- **Phase 2 (2016 - 2021) - 355 new homes**
  - Site 2.1: Burgoyne Barracks (265 homes);
  - Site 2.2: Somerset Barracks (90 new homes)

- **Phase 3 (2021 - 2026) - 365 new homes**
  - Site 3.1: Risborough Barracks (remainder) (365 homes)

- **Phase 4 (Beyond 2026 - excluded from assessment) - 195 new homes**
  - Site 4.1: Napier Barracks (150 homes);
  - Site 4.2: ASU / POL Site (45 homes)

Appendix 2 to this Technical Annex provides a detailed spreadsheet breakdown of the trips generated by mode of travel for each of the residential sites within Phases 1-3 of the proposed masterplan development identified above, a summary of which is provided in Tables 4.7, 4.8 and 4.9.

Table 4.7 Weekday Trip Generation by Mode of Travel - Phase 1 (by 2016)

Mode	AM Peak			PM Peak		
	Combined	Arrivals	Departures	Combined	Arrivals	Departures
Walk	84	26	58	87	56	31

Cycle	6	2	4	6	4	2
Car Driver	137	43	94	143	92	51
Car Passenger	70	22	48	81	52	29
Bus / Coach	14	4	10	14	9	5
Rail	3	1	2	0	0	0
Combined	314	98	216	331	213	118

Table 4.8 Weekday Trip Generation by Mode of Travel - Phase 2

Mode	**AM Peak**			**PM Peak**		
	Combined	**Arrivals**	**Departures**	**Combined**	**Arrivals**	**Departures**
Walk	107	33	74	110	70	40
Cycle	7	2	5	7	5	2
Car Driver	174	54	120	181	116	65
Car Passenger	89	28	61	103	66	37
Bus / Coach	18	6	12	18	11	7
Rail	4	1	3	0	0	0
Combined	399	124	275	419	268	151

Table 4.9 Weekday Trip Generation by Mode of Travel - Phase 3

Mode	**AM Peak**			**PM Peak**		
	Combined	**Arrivals**	**Departures**	**Combined**	**Arrivals**	**Departures**
Walk	110	34	76	113	72	41
Cycle	7	2	5	7	5	3
Car Driver	179	55	123	186	119	67
Car Passenger	91	28	63	106	68	38

Bus / Coach	18	6	13	18	12	7
Rail	4	1	3	0	0	0
Combined	409	127	282	431	276	155

The cumulative totals of weekday trip generation as the development phases are considered in Tables 4.10 and 4.11, i.e. by 2021 the total trip generation is equivalent to Phases 1 and 2 combined and by 2026 the total trip generation is equivalent to Phases 1, and 3 combined.

Table 4.10 Total Weekday Trip Generation by Mode of Travel (by 2021)

Mode	**AM Peak**			**PM Peak**		
	Combined	**Arrivals**	**Departures**	**Combined**	**Arrivals**	**Departures**
Walk	191	59	132	197	126	71
Cycle	13	4	9	13	9	4
Car Driver	311	97	214	324	208	116
Car Passenger	159	50	109	184	118	66
Bus / Coach	32	10	22	32	20	12
Rail	7	2	5	0	0	0
Combined	713	222	491	750	481	269

Table 4.11 Total Weekday Trip Generation by Mode of Travel (by 2026)

Mode	**AM Peak**			**PM Peak**		
	Combined	**Arrivals**	**Departures**	**Combined**	**Arrivals**	**Departures**
Walk	301	93	208	310	198	112
Cycle	20	6	14	20	13	7
Car Driver	490	152	338	510	327	183
Car Passenger	250	78	172	290	186	104

Bus / Coach	50	16	34	50	32	18
Rail	11	3	8	0	0	0
Combined	1,122	348	774	1,180	756	424

Non-Residential Trip Generation

As outlined within the main body of the Shorncliffe Garrison Masterplan it is anticipated that the land for the development of the proposed non-residential uses will be released within Phase 2 of the overall delivery programme, i.e. during the period 2016 - 2021.

Whilst at this stage the exact floor area of the proposed non-residential uses is unknown is has been assumed for the purposes of this Technical Annex, based upon a professional judgement, that it will comprise the following:

- Primary School: 1,161m^2 (approx. 12,500ft^2) - typical of 2FE;
- Healthcare Facility: 697m^2 (approx. 7,500ft^2)
- Local Shops: 929m^2 (approx. 10,000ft^2)

Appendix 3 to this Technical Annex provides a detailed spreadsheet breakdown of the trips generated by mode of travel for the non-residential uses within the proposed masterplan development identified above, a summary of which is provided in Table 4.12.

Table 4.12 Weekday Trip Generation by Mode of Travel - Non-Residential Uses

Mode	**AM Peak**			**PM Peak**		
	Combined	**Arrivals**	**Departures**	**Combined**	**Arrivals**	**Departures**
Walk	324	251	73	85	40	45
Cycle	4	2	2	4	2	2

Car Driver	239	170	69	132	59	73
Car Passenger	19	11	8	36	15	21
PT User	14	12	2	4	2	2
Combined	600	446	154	261	118	143

Internalisation of Trips

As noted within para's 4.2.19 - 4.2.22 of the SMR the opportunity for a proportion of trips generated by the proposed Strategic Sites has been considered in the development of the SDC Transport Strategy. In the context of the Shorncliffe Garrison Masterplan site these opportunities include:

- linkage of the proposed residential uses to the non-residential uses in the community hub, i.e. the primary school, healthcare facilities, local shops and the Tower Theatre (existing);

- linkage between the proposed residential uses and the retained MOD uses, including Sir John Moore Barracks;

- linkage between the proposed non-residential uses and the retained MOD uses.

Within the SMR internalisation factors of 'none' (0%), 'low' (5%), 'medium' (10%) and 'high' (15%) have been considered on a site by site basis. the Shorncliffe Garrison Masterplan site was deemed to represent the opportunity for a medium level of internalisation based upon the mix of development proposed. Accordingly a 10% internalisation factor was applied to the trip generation derived from the Shorncliffe Garrison Masterplan site within the SMR.

Given the opportunities for internalisation of trips as outlined above it is considered that the 10% internalisation factor may be on the conservative side, not least it does not take account of measures to be delivered through the Smarter Choices strategy to further reduce the number of external trips.

Nevertheless for the purpose of robust analysis within this Technical Annex a 10% internalisation factor has been adopted. Accordingly the residential trip rates are reduced by 10% and the non-residential trips rates are adjusted to reflect the impact of the 10% reduction in residential trip rates.

Again it is considered that a 10% adjustment to the non-residential trip rates to reflect internalisation is considered to be an under-estimate. For example this suggests that a

significant proportion of trips generated by the primary school would be from outside of the masterplan area whereas the purpose of delivering this land use within the scheme is to serve the population of the emerging development and therefore a significantly higher proportion of internalisation would be anticipated.

Existing Permitted Uses

A significant proportion of the Shorncliffe Garrison Masterplan Strategic Site comprises active military land uses that under existing conditions has the ability to generate trips by all modes of travel throughout the weekday AM and PM peak periods as well as over a daily basis, including a considerable proportion of HGV's.

At this stage of the masterplan process there have been no surveys undertaken to formally establish the full extent of trips generated by the existing military uses within the Shorncliffe Garrison Masterplan Strategic Site and as the masterplan progresses further analysis work will need to be undertaken. Nevertheless it is evident that as existing military land is released for development purposes there will be, as a consequence, a net reduction in existing trips on the surrounding network as these uses are relocated to other parts of the MOD estate beyond the extent of the network under consideration.

For the purpose of robust analysis, the assessments undertaken within the Technical Annex take no account of trips generated by the existing military uses on the site that will be displaced as a consequence of the masterplan proposals.

Trip Distribution & Assignment

Within the SMR the Census 2001 Journey to Work information has been used to establish trip distribution in agreement with SDC, KCC and the HA. From the Census data it is possible to establish the distribution of trips originating from Shepway district, i.e. 'Residential' distribution and trips arriving to the district, i.e. 'Non-Residential' distribution.

The methodology used within the SMR has been adopted for the purpose of this Technical Annex. Table 4.13 provides a summary of the detailed analysis contained within the SMR for both residential and non-residential trip distribution.

Table 4.13 Residential / Non-Residential Trip Distribution

Area	Car driver Journey to Work Distribution Proportions (%)		Area	Car driver Journey to Work Distribution Proportions (%)	
	Residential	Non-Residential		Residential	Non-Residential
Ashford	12	5	**Lydd**	7	5
Canterbury & East Kent	6	10	**Lympne**	2	1
Central Folkestone	24	19	**Maidstone**	2	1

Central Kent	1	1	**New Romney**	5	6
Cheriton	8	10	**North Downs**	4	8
Dover	8	7	**North Kent**	1	1
Dymchurch	1	4	**Other**	1	1
East Folkestone	2	5	**Romney Marsh**	1	1
Greater London	3	1	**South Kent**	1	1
Hastings	0	0	**West Folkestone**	4	4
Hythe	7	9	**TOTAL**	100	100

Based upon the distribution of residential and non-residential trips outlined in Table 4.13 above, the car driver trips associated within each of the individual development sites have then been assigned to the surrounding highway network. This assignment process has been based upon the quickest route between origin and destination taken from an internet-based route finder.

Each of the development sites within the overall Masterplan site will generally follow the same route on the wider network however within the highway network under consideration there will be subtle differences in the routing of trips.

A judgement has also been taken where the route to / from an origin and destination is likely to be split between multiple routes within the network under consideration. By way of example trips to / from Central Folkestone have been assumed to be equally split between Risborough Road / A20 Cheriton High Street and Shorncliffe Road whereas trips to / from Ashford will all be assigned to the A20 Cheriton High St and J12 of the M20 motorway.

Appendix 4 to the Technical Annex provides details of the routing assumptions from each of the development sites within the overall Masterplan site. Appendix 5 then provides details of the assignment of trips associated with each of the development sites plus the cumulative effect of trip distribution at the completion of each of the phases of the Masterplan development.

It is the latter that has then been used to analyse the effect of development-related car driver trips on the operation of the surrounding highway network in the section of this Technical Annex entitled 'Highways Impact'.

5.0 Highways Impact

Background Traffic Growth

As noted in the section on 'Trip Generation', the proposed Shorncliffe Garrison Masterplan Strategic Site is to be delivered in phases. For the purpose of this Technical Annex key milestones have been identified when it is anticipated that each phase of development will be completed.

Within the LDF period, these key milestones have been identified as follows:

- Completion of Phase 1 - 2016:280 new homes)
- Completion of Phase 2 - 2021:635 homes in total (355 new homes) plus Community Hub
- Completion of Phase 3 - 2026:1,000 homes in total (365 new homes)

Beyond the end of the LDF period there is a further phase of development (Phase 4) that is anticipated to release a further 195 new homes bringing the total to 1,195 homes. Given that the SDC Transport Strategy only considers the release of development up to the end of the plan period, i.e. 2026, Phase 4 of the Shorncliffe Garrison Masterplan Strategic Site has not been included within the analysis in this Technical Annex.

Within the SDC Transport Strategy Spreadsheet Model Report (SMR) traffic growth factors have been identified for future assessment years based upon a 2010 base. These traffic growth factors are based upon the TEMPRO database adjusted to take account of the effect of the Strategic Site allocations. The results of this exercise are summarised in Table 4.19 of the SMR. Table 5.1 summarises the traffic growth factors for the future key milestone dates under consideration within this Technical Annex.

Table 5.1 Traffic Growth Factors (2010 Base)

Future Year	AM Growth Factor	PM Growth Factor	Average Weekday Growth Factor
2016	1.015	1.015	1.016
2021	1.057	1.057	1.061
2026	1.136	1.135	1.142

Baseline Operation of the Highway Network

Within the SDC Transport Strategy a report entitled 'Highways Impact Report' (HIR) analyses the impact of the potential allocation of the Strategic Sites on key nodes / links on network within the District.

Of the key links and nodes identified within the HIR, those locations particularly relevant to the Shorncliffe Garrison Masterplan Strategic Site are:

- M20 Junction 12;
- Cheriton High Street / A20 Cheriton High Street;
- Horn Street (at railway bridge);
- Horn Street (through Horn Street village)

In addition to the nodes as listed above and in the context of the assessment undertaken in respect of trip generation associated with the Shorncliffe Garrison Masterplan Strategic Site, the following other links and nodes on the surrounding highway network are considered particularly relevant and have therefore been considered within this Technical Annex:

- Cheriton High Street / Horn Street;
- A20 Cheriton High Street / Risborough Lane;
- Risborough Lane / Shorncliffe Road;
- Church Road / Risborough Lane;
- Military Road / North Road;
- Military Road (south towards Sandgate);
- West Road / Hospital Hill (south towards Seabrook).

As noted in the section on trip generation it is important to note that at this stage the impact of development-related traffic on the operation of key nodes and links within the surrounding highway network is likely to have been overestimated on the basis that:

- No account has been taken of the reduction in military traffic to / from the site as a consequence of the phased release of land for development;

- The 10% internalisation factor applied is likely to be an underestimate as a significant proportion of the resultant trips attributed to the non-residential uses, in particular the primary school facilities, would still be generated from outside of the site; and
- No account has been taken of the potential for a reduction in car driver trip rates as a result of the comprehensive measures to be implemented to promote smarter choices in terms of choice of mode of travel.

Notwithstanding the above the following paragraphs of this Technical Annex consider in detail the impact of development-related trip generation at each of the locations identified above based upon the robust approach adopted to trip generation:

M20 Junction 12

The Cheriton Interchange, Junction 12 of the M20 motorway, is some 2.6 kilometres north of the masterplan site. In hierarchal terms the M20 motorway is considered to be a strategic route that in a north-westerly direction extends towards Ashford, Maidstone and the M25 London Orbital motorway and in an easterly direction leads onto the A20 towards Dover.

From the HIR within the SDC Transport Strategy it was noted that Cheriton Interchange (a six-arm roundabout above the motorway) operates within capacity during both the AM and PM peak periods under year 2010 baseline flows.

Table 5.2 below summarises the impact of additional traffic generated by the Shorncliffe Garrison Masterplan Strategic Site on the operation of the Cheriton Interchange (J12 M20) over the lifetime of the LDF Core Strategy. Full spreadsheet analysis in support of Table 5.2 is provided in Appendix 6 to the Technical Annex.

Table 5.2 Impact of Proposed Development on Cheriton Interchange (J12 M20)

Time Period	AM Peak			PM Peak		
	Base	With Dev	% increase	Base	With Dev	% increase
2016 (with Phase 1)	6,772	6,870	1.45	6,078	6,174	1.58
2021 (with Phases 1 & 2)	7,052	7,418	5.19	6,329	6,623	4.65
2026 (with Phases 1,2 & 3)	7,579	8,067	6.44	6,796	7,220	6.24

The HIR also included analysis of the operation of the junction up to the end of the LDF Core Strategy, i.e. year 2026, including the effect of additional traffic associated with all of the Strategic Sites from which it was concluded that the junction in its existing configuration continued to operate within ideal operational capacity.

In terms of accident analysis it is noted from the HIR that over the 5 year period (Jan 2005 - Dec 2009) there were 6 no. reported incidents in the proximity of J12 of the M20 motorway, 2 no. of which involved vehicles colliding on the roundabout and 4 no. involved a 'loss of control' by drivers. Given the volume of traffic passing through the Cheriton Interchange (J12 M20), even during peak periods, this number of accidents over a five-year period (average of 1.2 per annum) is low.

It is therefore considered that the Shorncliffe Garrison Masterplan Strategic Site will not have a material impact on the operational or safety characteristics of the Cheriton Interchange (J12 M20).

Cheriton High Street / A20 Cheriton High Street

The A20 Cheriton High Street is a strategic route linking the M20 motorway and Folkestone town centre. Approximately 165 metres south of the Cheriton Interchange (J12 M20) the A20 Cheriton High Street forms a give-way controlled priority junction with Cheriton High Street, the latter performing a distributor road function leading to the Tesco foodstore, the Shorncliffe Garrison area and Horn Street. This section of the A20 Cheriton High Street is a dual 2-lane carriageway as it leads off the M20 motorway reducing to a single carriageway road beyond the junction.

On Cheriton High Street there is a single lane approach to the junction from which traffic is currently only permitted to turn left towards the M20 motorway. For traffic heading out of Folkestone there is a separate left slip into Cheriton High Street meaning that this traffic does not pass through the junction.

Analysis included within the HIR noted that even under year 2010 baseline conditions the junction operates over its theoretical capacity during both the AM and PM peak hourly periods, this being exacerbated under future assessment year (2026) flows both with and without development. On this basis the HIR recommends that junction improvement measures should be considered at this location. It was however noted from the HIR that there was no reference to any notable safety issues at the junction over the 5 year period (Jan 2005 - Dec 2009).

The HIR only considered AM peak flows through the junction based upon the baseline traffic data available however given that, in general, flows on the network under consideration are higher during the AM peak, this represents the time period during which any proposed development would have the greatest impact.

Table 5.3 summarises the impact of additional traffic generated by the Shorncliffe Garrison Masterplan Strategic Site on the operation of the A20 Cheriton High Street / Cheriton High

Street junction over the lifetime of the LDF Core Strategy. Full spreadsheet analysis in support of Table 5.3 is provided in Appendix 7 to the Technical Annex.

Table 5.3 Impact of Proposed Development on Cheriton High Street / A20 Cheriton High Street

Time Period	AM Peak		
	Base	With Dev	% increase
2016 (with Phase 1)	5,666	5,764	1.73
2021 (with Phases 1 & 2)	5,900	6,266	6.20
2026 (with Phases 1,2 & 3)	6,341	6,829	7.70

From Table 5.3 it can be seen that up to 2016, i.e. the completion of Phase 1 development on the masterplan site the impact of additional development-related traffic through the junction is not material however upon the completion of Phase 2 the level of additional traffic movements through the junction exceeds 5%.

In this regard consideration has been given to junction improvement measures at the Cheriton High Street / A20 Cheriton High Street junction to address the existing capacity constraints and mitigate the effect of the proposed development.

Plan TA-01 included within the Technical Annex shows the extent of potential junction improvement measures that would comprise the following:

- The conversion of the junction to traffic signal control;
- The widening of the A20 Cheriton High Street (north) approach through alterations to the existing traffic island to provide a flared two-lane right turn facility into Cheriton High Street;
- The widening of the A20 Cheriton High Street (south) by altering the existing traffic island to provide a flared two-lane approach for through traffic towards Cheriton Interchange;
- The widening of the Cheriton High Street approach through alterations to the existing traffic island to provide a flared two-lane left turn facility for traffic heading towards Cheriton Interchange;
- The potential creation of a right turn facility out of Cheriton High Street - initially identified as a possible 'Bus Only' facility.

A preliminary assessment of the potential operation of the traffic signals arrangement has been undertaken, the results of which are included as Appendix 8 and summarised in Table 5.4.

Table 5.4 Cheriton High Street / A20 Cheriton High Street Signalisation - Summary of Results

Approach	Deg. Sat. (%)	Queue
A20 Cheriton High St (south) - ahead	74.5	6.6
Cheriton High St - left	52.2	4.5
Cheriton High St - right (bus only)	4.4	0.2
A20 Cheriton High St (north) - ahead	50.7	3.9
A20 Cheriton High St (north) - right	73.0	6.5

The results in Table 5.4 indicate that the potential junction improvement measures at Cheriton High Street / A20 Cheriton High Street would operate within capacity under year 2026 AM Peak flow conditions, including Phases 1 - 3 of the Shorncliffe Garrison Masterplan Strategic Site. the model results are based upon a cycle time of 70 seconds.

By implication the junction arrangements would have even greater capacity under year 2021 flow conditions, i.e. the potential trigger point for the works when Phases 1 and 2 would be completed.

It is also evident from the results in Table 5.4 that it may be possible to introduce a right turn movement out of Cheriton High Street for general traffic as well as buses without having a material impact in capacity at the junction. This along with an assessment of PM peak flow conditions would be the subject of further investigation when baseline flows are available for this period.

It is therefore considered that the potential signalisation of the Cheriton High Street / A20 Cheriton High Street junction would mitigate the impact of traffic generated by the Shorncliffe Garrison Masterplan Strategic Site and would also have wider benefits in terms of addressing existing deficiencies in the capacity of the junction. The potential trigger point for the completion of the suggested highway works would be around year 2021 upon the completion of Phase 2 of the proposed development.

Horn Street (railway bridge)

Horn Street is a main distributor road that extends southwards from Cheriton High Street to the A259 at Seabrook passing to the west of the Shorncliffe Garrison Masterplan Strategic Site. As well as providing direct access to the land at St Martin's Plain, which forms part of Phase 1 of the proposed development, Horn Street is also an important route for access to / from the remainder of the masterplan site.

165 metres south of its junction with Cheriton High Street, Horn Street passes over the London - Folkestone railway line on a narrow bridge that has a running carriageway width of 5.2 metres between parapets. It is possible for two vehicles to pass over the bridge simultaneously however the alignment on both approaches results in a reduction in speed. The bridge is also the subject of a 24T weight limit.

A separate pedestrian bridge is located to the east of the road bridge that is provided to a width of 2.0 metres. This separate bridge facilitates safe passage across the railway line for pedestrians heading to / from the direction of the Tesco foodstore and the Shorncliffe masterplan area.

The HIR considers that the link capacity of Horn Street in the vicinity of the bridge, based upon the characteristics of the road, would be in the order of 900 vehicles per hour in each direction. Table 5.5 summarises the anticipated link flows over Horn Street railway bridge over the various phases of development on the Shorncliffe Garrison Masterplan Strategic Site. Full spreadsheet analysis in support of Table 5.5 is provided in Appendix 9 to the Technical Annex.

Table 5.5 Impact of Proposed Development on Horn Street Railway Bridge

Direction	2016 + Phase 1		2021 + Phases 1 & 2		2026 + Phases 1,2 & 3	
	AM	PM	AM	PM	AM	PM
Northbound	564	444	617	485	680	530
Southbound	737	689	804	744	870	816

From Table 5.5 it can be seen that the Horn Street railway bridge will continue to operate within its link capacity in both directions up to the end of the LDF Core Strategy period (2026) with Phases 1-3 of the Shorncliffe Garrison Masterplan Strategic Site being implemented.

It is also noted from the HIR that there was no reference to any notable safety issues at the railway bridge over the 5 year period (Jan 2005 - Dec 2009).

Notwithstanding the above a package of measures to enhance the safety characteristics of the Horn Street railway bridge have been identified that could include the following:

- Realignment of the Horn Street (southbound) approach to improve forward visibility through the railway bridge;

- Realignment of the Horn Street (northbound) approach to improve forward visibility through the railway bridge coupled with associated alterations to the Church Road junction;
- The provision of 'KEEP CLEAR' road markings on the main carriageway of Horn Street at the junction with Church Road;
- The permanent closure of the existing access to St Martin's Plain (currently located some 50 metres south of the bridge) to be replaced by the construction of a new vehicular access to the proposed residential development further south along Horn Street.

Plan TA-02 to the Technical Annex shows the extent of the potential safety improvements measures outlined above.

In terms of the timing of the implementation of these measures and given the proximity of the bridge to Phase 1 site at St Martin's Plain, the potential trigger point would be before year 2016, i.e. prior to the completion of Phase 1.

Horn Street (through Horn Street village)

The characteristics of Horn Street as it passes through Horn Street village are similar to that experienced at the railway bridge. Typically the highway link capacity would be in the order of 900 vehicles per hour in each direction.

Table 5.6 summarises the anticipated link flows through Horn Street village over the various phases of development on the Shorncliffe Garrison Masterplan Strategic Site. Spreadsheet analysis in support of Table 5.6 is provided in Appendix 10 to the Technical Annex.

Table 5.6 Impact of Proposed Development through Horn Street Village

Direction	2016 + Phase 1		2021 + Phases 1 & 2		2026 + Phases 1,2 & 3	
	AM	PM	AM	PM	AM	PM
Northbound	235	162	245	169	269	193
Southbound	175	268	182	279	208	306

From Table 5.6 it can be seen that the Horn Street as it passes through Horn Street village will continue to operate well within its link capacity in both directions up to the end of the LDF Core Strategy period (2026) with Phases 1-3 of the Shorncliffe Garrison Masterplan Strategic Site being implemented. It is also noted from the HIR that there was no reference to any notable safety issues through Horn Street village over the 5 year period (Jan 2005 - Dec 2009).

It is therefore considered that the Shorncliffe Garrison Masterplan Strategic Site will not have any noticeable impact on the operational or safety characteristics of Horn Street as it passes through Horn Street village.

Cheriton High Street / Horn Street

The Cheriton High Street / Horn Street traffic signal junction is located approximately 260 metres west of the junction with the A20 and immediately south of the Tesco foodstore. The junction is provided with single lane approaches in both directions on Cheriton High Street and a flared two lane approach marked for separate left and right turning lanes on Horn Street.

Within the junction complex there is an entry only to the Tesco store that provides access to the delivery area and petrol filling station. The junction is also provided with an 'all-red' pedestrian crossing stage within the traffic signal sequence. As a consequence of these features the intergreen periods within the cycle time of the traffic signals are long that can lead to queues.

The HIR does not provide any junction capacity analysis for the Cheriton High Street / Horn Street junction and, at present, there are no baseline traffic flows available for either the weekday AM or PM peak periods in order to determine the impact of the proposed development.

It is however observed that the Cheriton High Street (westbound) and Horn Street (right turn) approaches to the junction carry the highest traffic demand through the junction.

From the analysis undertaken of trip generation and distribution it is noted that this junction is an important node in terms of access to / from the site. Table 5.7 provides a summary of additional traffic through the Cheriton High Street / Horn Street junction over the various phases of development on the Shorncliffe Garrison Masterplan Strategic Site.

Table 5.7 Impact of Proposed Development through Cheriton High Street / Horn Street Junction

Approach	2016 + Phase 1		2021 + Phases 1 & 2		2026 + Phases 1,2 & 3	
	AM	PM	AM	PM	AM	PM
Cheriton High Street (westbound left turn)	+7	+15	+44	+42	+53	+62
Horn Street (right turn)	+17	+8	+47	+30	+68	+42

Due to the physical constraints around the Cheriton High Street / Horn Street junction in terms of existing frontage development (mainly residential), there is limited scope to undertake improvement measures that would improve capacity.

Plan TA-03 included within the Technical Annex does however indicate the potential to widen the Cheriton High Street westbound approach to the junction to provide separate left and ahead lanes for a distance of approximately 65 metres to the existing bus stop. As part of this package of works it would be possible to construct a new left slip and pedestrian

refuge island that in turn would reduce crossing distances and the intergreens within the traffic signal cycle. Furthermore it would also be possible to review the sequence of the traffic signals to facilitate the movement of the left turn into Horn Street to run concurrently with the right turn out of Horn Street.

It is anticipated that the combination of these measures would significantly improve the operational efficiency of the junction, mitigate the impact of development-related traffic and, in general, reduce queues on the key approaches.

Further analysis will need to be undertaken in due course however from Table 5.7 it can be seen that the potential trigger point for undertaking the improvement works at the Cheriton High Street / Horn Street junction would be around year 2021 upon the completion of Phase 2 of the proposed development.

A20 Cheriton High Street / B2063 Risborough Lane

The A20 Cheriton High Street / Risborough Lane junction is located approximately 900 metres south-east of the Cheriton Interchange (J12 M20) to the north-east of the Shorncliffe Garrison Masterplan Strategic Site. It is located within the heart of the local shopping centre of Cheriton and the junction is provided with traffic signal control with an 'all-red' pedestrian stage provided within the overall cycle of the traffic signal operation.

The junction is provided with four approach arms namely the A20 Cheriton High Street in both directions, The B2063 Risborough Lane and Stanley Road. The A20 Cheriton High Street in an eastbound direction (towards Folkestone) is a two-lane approach with ahead / left traffic on the nearside lane and right turning traffic into the B2063 Risborough Lane on the offside.

Similarly the A20 Cheriton High Street westbound is a two-lane approach marked for left turning and ahead traffic respectively (there is no right turn permitted into Stanley Road from this approach). The B2063 Risborough Lane has a short flared two lane approach traffic marked separately for left and right turning traffic and Stanley Road has a single lane approach.

The HIR does not provide any junction capacity analysis for the A20 Cheriton High Street / B2063 Risborough Lane junction and, at present, there are no baseline traffic flows available for either the weekday AM or PM peak periods in order to determine the impact of the proposed development.

It is however noted from the analysis undertaken of trip generation and distribution that this junction is an important node in terms of access to / from the site. Table 5.8 provides a summary of additional traffic through the A20 Cheriton High Street / B2063 Risborough Lane junction over the various phases of development on the Shorncliffe Garrison Masterplan Strategic Site.

Table 5.8 Impact of Proposed Development through A20 Cheriton High Street / B2063 Risborough Lane Junction

Approach	2016 + Phase 1		2021 + Phases 1 & 2		2026 + Phases 1,2 & 3	
	AM	PM	AM	PM	AM	PM
A20 Cheriton High Street (eastbound)	+8	+16	+46	+43	+56	+64
A20 Cheriton High Street (eastbound)	+9	+19	+55	+49	+65	+72
B2063 Risborough Lane (left turn)	+17	+9	+46	+32	+67	+44
B2063 Risborough Lane (right turn)	+19	+12	+52	+38	+76	+50

Due to the physical constraints around the A20 Cheriton High Street / B2063 Risborough Lane junction in terms of existing frontage development (mainly local retail), there is limited scope to undertake improvement measures that would improve capacity.

Plan TA-04 included within the Technical Annex does however indicate the potential to construct a kerb build-out on the Stanley Road approach that would result in changing Stanley Road to one-way operation northbound away from the junction.

The removal of the stopline on Stanley Road would reduce the number of stages within the traffic signal cycle and hence increase capacity as more time would be given over to the other approaches to the junction.

In the event that the potential improvement works are implemented southbound traffic on Stanley Road would need to turn left into Baker Road and then right into Somerset Road to gain access to the A20 Cheriton High Street, an increase in journey distance of no more than 100 metres.

With the implementation of the kerb build-out it would be possible to provide a raised table crossing into Stanley Road off the A20 Cheriton High Street that, in turn, would reduce traffic speeds as vehicles enter the existing 20mph zone and improve crossing conditions for pedestrians. Furthermore the opportunity would exist to provide on-street parking bays on Stanley Road adjacent to the Co-Op foodstore.

Further analysis will need to be undertaken in due course however from Table 5.8 it can be seen that the potential trigger point for undertaking the improvement works at the A20 Cheriton High Street / B2063 Risborough Lane junction would be around year 2021 upon the completion of Phase 2 of the proposed development.

B2063 Risborough Lane / Shorncliffe Road

Some 170 metres south of the junction with the A20 Cheriton High Street the B2063 Risborough Lane forms a give-way controlled priority junction with Shorncliffe Road (the latter being the minor arm of the junction).

The B2063 Risborough Lane / Shorncliffe Road junction is located immediately south of a bridge carrying the London - Folkestone railway line. This bridge is subject to a 14' 6" height restriction. The B2063 Risborough Lane is provided with a single lane approach in both directions to the junction (there are no ghosted right turn lane facilities). Shorncliffe Road is also provided with a single lane approach and is provided with a pedestrian refuge island in the centre of the carriageway close to the junction.

Of particular note from a safety perspective is that visibility splays in both directions along the B2063 Risborough Lane on exit from Shorncliffe Road are restricted by the railway bridge to the north and the boundary fence to the frontage development to the south. It is however noted that the HIR does not identify a noticeable accident record at this location.

Similarly the HIR does not include any junction capacity analysis for the B2063 Risborough Lane / Shorncliffe Road junction and, at present, there are no baseline traffic flows available for either the weekday AM or PM peak periods in order to determine the impact of the proposed development.

It is however noted from the analysis undertaken of trip generation and distribution that this junction is an important node in terms of vehicular access to / from the site. In addition the junction also serves an important function in terms of non-motorised users being located on a key desire line for pedestrian and cycle connectivity between the masterplan site and Folkestone West railway station.

Table 5.9 provides a summary of additional traffic through the B2063 Risborough Lane / Shorncliffe Road junction over the various phases of development on the Shorncliffe Garrison Masterplan Strategic Site.

Table 5.9 Impact of Proposed Development through B2063 Risborough Lane / Shorncliffe Road Junction

Approach	2016 + Phase 1		2021 + Phases 1 & 2		2026 + Phases 1,2 & 3	
	AM	PM	AM	PM	AM	PM
B2063 Risborough Lane (northbound ahead)	+36	+21	+98	+70	+143	+94
B2063 Risborough Lane (northbound right)	+12	+6	+32	+21	+46	+29
B2063 Risborough Lane (southbound ahead)	+17	+35	+101	+92	+121	+136
Shorncliffe Road	+5	+11	+30	+29	+37	+43

Due to the physical constraints around the B2063 Risborough Lane / Shorncliffe Road junction in terms of the railway bridge and existing frontage development, there is limited scope to undertake improvement measures that would improve safety and capacity.

Plan TA-05 included within the Technical Annex does however indicate the potential to convert the junction to traffic signal control that would have the benefit of overcoming the existing sightline constraints on Shorncliffe Road and would also enable formal pedestrian / cycle crossing facilities to be provided.

As part of these proposed works it would also be possible to widen the footway on the western side of the B2063 Risborough Lane to 2.5 metres to provide a shared footway / cycleway, as part of which it would also be possible to provide a raised table entry treatment across the bellmouth of Heritage Road to the south of the junction.

Further analysis will need to be undertaken in due course however from Table 5.9 it can be seen that the potential trigger point for undertaking the improvement works at the B2063 Risborough Lane / Shorncliffe Road junction would be around year 2021 upon the completion of Phase 2 of the proposed development.

B2063 Risborough Lane / Church Road

A further 220 metres south of the junction with Shorncliffe Road the B2063 Risborough Lane forms a give-way controlled priority junction with Church Road (the latter being the minor arm of the junction). All approaches to the junction are single lane and there are no right turn facilities on the B2063 Risborough Lane. A pedestrian refuge island is provided in the centre of the carriageway on the Church Road approach.

The B2063 Risborough Lane / Church Road junction is a key node in terms of the Shorncliffe Garrison Masterplan Strategic Site given that the majority of traffic to / from the site in the direction of Folkestone town centre would pass through this junction. This junction and, more importantly, the Church Road corridor are also important in terms of non-motorised users access between the masterplan site, Cheriton High Street and Folkestone West station.

The HIR does not include any junction capacity analysis for the B2063 Risborough Lane / Church Road junction and, at present, there are no baseline traffic flows available for either the weekday AM or PM peak periods in order to determine the impact of the proposed development. The HIR does not identify the B2063 Risborough Lane / Church Road junction as being of any significance in terms of its safety record.

Table 5.10 provides a summary of additional traffic through the B2063 Risborough Lane / Church Road junction over the various phases of development on the Shorncliffe Garrison Masterplan Strategic Site.

Table 5.10 Impact of Proposed Development through B2063 Risborough Lane / Church Road Junction

Approach	2016 + Phase 1		2021 + Phases 1 & 2		2026 + Phases 1,2 & 3	
	AM	PM	AM	PM	AM	PM
B2063 Risborough Lane (northbound ahead)	+3	+2	+85	+66	+85	+66

B2063 Risborough Lane (northbound left)	+1	+1	+1	+1	+1	+1
B2063 Risborough Lane (southbound ahead)	+2	+3	+111	+78	+111	+78
B2063 Risborough Lane (southbound right)	+20	+43	+20	+43	+47	+101
Church Road (left)	+45	+25	+45	+25	+104	+57
Church Road (right)	+2	+1	+2	+1	+2	+1

Due to the physical constraints around the B2063 Risborough Lane / Church Road junction in terms of existing frontage development there is limited scope to undertake improvement measures that would improve safety and capacity.

Plan TA-06 included within the Technical Annex does however indicate the potential to convert the junction to traffic signal control that would enable the B2063 Risborough Lane southbound approach to be provided with separate ahead and right turn lanes and Church Road to be provided with separate left and right turn lanes as well as the provision of formal pedestrian / cycle crossing facilities.

As part of these proposed works it is envisaged that Oaks Road to the north of Church Road could be identified as a formal signed route for cyclists leading from the masterplan site in the direction of Cheriton High Street and Folkestone West station thereby avoiding the need to pass through the B2063 Risborough Lane / Church Road junction.

Plan TA-06 indicates that entry treatment works could be undertaken at the junctions of Oaks Road with Risborough Lane and Church Road through carriageway narrowing and raised table crossings that would not only serve to reduce rat-running of vehicular traffic along this route but would also reduce vehicle speeds on Oaks Road and improve conditions for non-motorised users including cyclists and pedestrians.

Further analysis will need to be undertaken in due course however from Table 5.10 it can be seen that the potential trigger point for undertaking the improvement works at the B2063 Risborough Lane / Church Road junction would be around year 2016 upon the completion of Phase 1 of the proposed development.

B2063 North Road / B2170 Military Road

The junction of the B2063 North Road and the B2170 Military Road is located 95 metres east of the Main Gate access to Sir John Moore Barracks on the eastern edge of the Shorncliffe Garrison Masterplan Strategic Site. The give-way controlled priority junction that exists at this location is provided with a signle lane approach on the minor arm (the B2063 North Road) and single through lanes on the main carriageway. Both approach roads are provided to a carraiegway width of around 6.7 metres.

Footways of some 1.8 - 2.0 metres are provided on both sides of the carriageway on both approach roads. There is no ghosted right turn lane at the junction however generous corner radii are provided to accommodate the swept path of larger HGV's wishing to access the Barracks and there is a pedestrian refuge island on the B2063 North Road approach to the junction.

Forward visibility on the main carriageway and the visibility out of North Road to the left are of a good standard. The visibility splay to the right when pulling out of North Road is partially obscured, particularly from a set-back distance of 4.5 metres by the boundary fence and hedgerow to Sir John Moore Barracks. In conjunction with the Masterplan proposals consideration could be given to the realignment of the boundary fence line to improve visibility to the right on ext from the B2063 North Road however it is noted from the HIR that there was no defined poor accident history at this junction.

In addition the HIR does not provide any junction capacity analysis for the B2063 North Road / B2170 Military Road junction and, at present, there are no baseline traffic flows available for either the weekday AM or PM peak periods in order to determine the impact of the proposed development. Further analysis will need to be undertaken in due course however there is no perception of a capacity issue at this location.

Overall it is not considered that there will be any material operational or safety impact of development-related traffic at the B2063 North Road / B2170 Military Road junction.

B2170 Military Road

The B2170 Military Road is a main distributor road that extends south-eastwards from the Shorncliffe Garrison Masterplan Strategic Site connecting with the A259 Sandgate High Street. It has a variable carriageway width of between 6.2 and 7.3 metres with a footway on at least one side of the road along its length.

The road has direct frontage residential development along its length (particularly towards the southern end as it approaches Sandgate High Street). In the context of the DMRB Standards in TA79/99 the B2170 Military Road would be expected to have a link capacity of around 1,020 - 1,110 vehicles per hour in each direction.

The HIR does not provide any link capacity analysis for the B2170 Military Road and, at present, there are no baseline traffic flows available for either the weekday AM or PM peak periods in order to determine the impact of the proposed development.

Table 5.11 does however provide a summary of additional traffic generated along this corridor over the various phases of development on the Shorncliffe Garrison Masterplan Strategic Site.

Table 5.11 Anticipated Additional Traffic Generation along the B2170 Military Road

Direction	2016 + Phase 1		2021 + Phases 1 & 2		2026 + Phases 1,2 & 3	
	AM	PM	AM	PM	AM	PM

Northbound	+1	+3	+32	+14	+34	+18
Southbound	+2	+2	+16	+15	+21	+17

From Table 5.11 it can be seen that even at the end of the LDF Core Strategy period (2026) with Phases 1-3 of the Shorncliffe Garrison Masterplan Strategic Site being implemented the increase in total traffic movements along the B2170 Military Road during the weekday AM and PM peak period is no more than 55 vehicles, equivalent to less than one vehicle per minute. In terms of highway safety it is also noted from the HIR that there was no reference to any notable safety issues along the B2170 Military Road over the 5 year period (Jan 2005 - Dec 2009).

It is therefore considered that the Shorncliffe Garrison Masterplan Strategic Site will not have any noticeable impact on the operational or safety characteristics of the B2170 Military Road.

West Road / Hospital Hill (south towards Seabrook)

The B2063 West Road and Hospital Hill is another main distributor road that extends southwards from the Shorncliffe Garrison Masterplan Strategic Site connecting with the A259 Seabrook Road that in turns heads westwards towards Hythe and the Romney Marsh.

The B2063 West Road / Hospital Hill has a carriageway width of around 6.1 metres with a footway on at least one side of the road along its length. The road has limited frontage development along its length and therefore in the context of the DMRB Standards in TA79/99 would be expected to have a link capacity of around 1,020 vehicles per hour in each direction.

The HIR does not provide any link capacity analysis for the B2063 West Road / Hospital Hill and, at present, there are no baseline traffic flows available for either the weekday AM or PM peak periods in order to determine the impact of the proposed development. Table 5.12 does however provide a summary of additional traffic generated along this corridor over the various phases of development on the Shorncliffe Garrison Masterplan Strategic Site.

Table 5.12 Anticipated Additional Traffic Generation along the B2063 West Road / Hospital Hill

Direction	**2016 + Phase 1**		**2021 + Phases 1 & 2**		**2026 + Phases 1,2 & 3**	
	AM	**PM**	**AM**	**PM**	**AM**	**PM**
Northbound	+3	+8	+27	+19	+33	+31
Southbound	+8	+5	+21	+16	+34	+23

From Table 5.12 it can be seen that even at the end of the LDF Core Strategy period (2026) with Phases 1-3 of the Shorncliffe Garrison Masterplan Strategic Site being implemented the

increase in total traffic movements along the B2063 West Road / Hospital Hill during the weekday AM and PM peak period is no more than 67 vehicles, equivalent to one vehicle per minute.

In terms of highway safety it is also noted from the HIR that there was no reference to any notable safety issues along the B2063 West Road / Hospital Hill over the 5 year period (Jan 2005 - Dec 2009).

At the northern end of West Road a give-way priority junction is formed with North Road and Pond Hill Road. In its current configuration Pond Hill Road is the minor arm of the junction that is located on the outside of the bend. As Pond Hill Road extends from the junction there is a significant drop in the vertical alignment of the carriageway. On approach to the junction along Pond Hill Road an existing mature tree to the left partially obscures a clear view of approaching traffic on North Road.

In the context of the emerging masterplan development the area of formal open space known as Le Quense to the north of North Road, east of Pond Hill Road connects with the larger area of more informal open space that runs along the valley to the west of the site. the integration of these areas of open space are therefore considered as a masterplan proposals and, under existing conditions, Pond Hill Road would act as a barrier to achieving this objective.

Given the potential landscape value and the concerns with regard to vertical and horizontal alignment at the junction with West Road and North Road it is therefore proposed to close off the southern end of Pond Hill Road to vehicular traffic.

It is recognised that the closure of Pond Hill Road may have some limited effect on journey times for through traffic. Using Pond Hill Road, the journey time by car between the Hospital Hill / Upper Corniche junction and the Church Road / Horn Street junction would be 4 minutes. On the basis that Pond Hill Road is closed and through traffic is diverted via North Road and Royal Military Avenue the journey time between these two points would increase by only 2 minutes.

It is therefore considered that the closure of the southern end of Pond Hill Road will have a limited impact on journey times for through traffic that would by far be outweighed by the road safety benefits as well as the positive enhancement to access for non-motorised users, particularly leisure trips by foot and cycle.

Overall it is therefore considered that the Shorncliffe Garrison Masterplan Strategic Site will not have any noticeable impact on the operational or safety characteristics of the B2063 West Road / Hospital Hill.

6.0 Summary

Transport Infrastructure Associated with Shorncliffe Garrison Masterplan Strategic Site

Description of Works	Estimated Date of Implementation / Trigger Point	Notes	Estimated Cost
Signalisation of the Risborough Lane / Church Road junction plus entry treatment works to Oaks Road	2016 or prior to completion of Phase 1	All works to existing highway include allowance for drainage, lighting improvements , an estimate of any earthworks requirements plus commuted sum payments - they exclude any costs associated with the diversion of Statutory Services	£130,000
Signalisation of the Risborough Lane / Shorncliffe Road junction plus entry treatment works to Heritage Road	2021 or prior to completion of Phase 2		£105,000
Works to Stanley Road to improve operation of A20 Cheriton High Street / B2063 Risborough Lane junction	2021 or prior to completion of Phase 2		£60,000
Signalisation of the A20 Cheriton High Street / Cheriton High Street junction	2021 or prior to completion of Phase 2		£570,000 (potential for other contributions including LTP and other developers due to wider benefits of this improvement)
Works to existing traffic signals junction at Cheriton High Street / Horn Street	2021 or prior to completion of Phase 2		£245,000
Works to improve forward visibility through Horn Street railway bridge plus upgrade of pedestrian bridge	2016 or prior to completion of Phase 1		£80,000

Travel Plan Set Up	At start of development period - 2013	Includes set up for CIC, TPC, Community Website & pump priming of TP measures / initiatives	£50,000
On-going costs of maintaining Travel Plan	Annual cost	Allows for monitoring / review, analysis of travel patterns, TPC costs, personalised travel planning etc. - approx. cost. £5,000 per annum over period of say 10 years	£50,000
KCC TP Monitoring Fees	Annual Cost	Assume £1000 per annum	£10,000
Pump Priming of Bus Infrastructure to Deliver Enhanced Connections to Folkestone West & Town Centre	From commencement of Phase 2, i.e. 2016 - 2024	Cost of additional vehicle + driver (120000 per annum) - assumes 5 year pump priming period before service is commercial – assumes 50% revenue return	£300,000
PROW Improvements	2016 or prior to completion of Phase 1	Links across Backdoor Training Area & Seabrook Valley	Included in WCCP proposal for BTA
Upgrade of existing footpath linking Church Road and Cheriton High St	2021 or prior to completion of Phase 2	Includes upgrade of footbridge over London - Folkestone railway line (resurfacing, new edging, lighting enhancements)	£25,000
TOTAL COST			£1,625,000 (Approx £1,350 per DU)
Cost to end of Phase 1 (2016)			£260,000
Cost to end of Phase 2 (2021)			£1,200,000

Cost to end of Phase 3 (2026)			£165,000