

Part 2

Highway Design and Technical Review

2.1 Introduction, Aims and Key Objectives

This Chapter covers the design and technical approval of Category 2 or 3a Roads (refer to Table 1.1 in Part 1 of this guide). These roads are typically the strategic and main distributor roads in the County network.

Designers should follow the guidance provided in this section when indicated after using the flow chart in Part 1 Figure 1.2 to determine the appropriate design standards for their improvement.

It is expected that the guidance included in this section of the Design Guide will be appropriate for junction improvements connecting the development to the existing network and the distributor roads within larger developments.

WCC's Land Use and Transportation Strategy vision is:

'To encourage new development, which is accessible, safe, sustainable and integrated with the transport network, including modes other than the car'. (Ref LTP p179).

Therefore, the primary focus of the strategy is to ensure development is located where it can be linked to public transport and where easy walking and cycling access is available to employment areas, shops, schools and other services, thereby reducing social exclusion and dependence on travelling by car. In particular, larger developments should be close to high quality public transport corridors, either existing or proposed, and through routes for buses should always be included within the layout.

The design of the road infrastructure using the correct standards is critical to enabling the vision to be realised.

WCC expect that the DfT Design Manual for Roads and Bridges (DMRB) will be the primary design manual used for new improvements. Developers attention is drawn to GG101 Revision 0 Note 2 which states:

"Where a local highway authority decides to use the DMRB in whole or in part for development of its own highway/ road network, the overseeing organisation is defined in accordance with their own procedures."

In these situations, WCC will act as the overseeing organisation

2.2 Scheme delivery outline

For improvements which will be carried out on the existing road network, it is expected that once planning consent has been given that the Developer will be given contact details for WCC Engineering Design Services via their contact in Development Management in order to progress the application to enter into a formal agreement to begin the process of scheme delivery.

In general, the process is expected to be as follows;

- Developer to apply to enter into a S278 Agreement ([Link - QF019](#)) or S38 Agreement ([Link to Form](#)). Further information on legal agreements is included in Part 10 and Annex 10.1
- Developer to supply a preliminary general arrangement which corresponds to the planning consent

WCC to supply a fee estimate which will cover the fees relating to Technical Review process and procurement of a Contractor from the current WCC Contractors Framework. All these will be based on the scope of the works shown on the preliminary general arrangement and the estimated programme for construction. The fee estimate will also outline the details of what information is required for Technical Review which is also included in *Annex 2.1 Information relating to technical review, contract preparation, tendering and construction supervision of s278 highway improvements in Warwickshire*.

Prospective Developers should note - *If relevant information is not supplied then this will increase the time for Technical Review and additional fees may have to be charged for the additional reviews. It is also important for Developers to understand the typical timescales for Technical Review are months rather than weeks but a robust initial submission based on the recommendations in this Design Guide will keep the timescales to a minimum.*

- When Technical Review and procurement phase fees are paid and works information submitted, WCC will commence Technical Review. If departures from standards are required then these should be applied for and resolved at an early stage.
- The Developer will be responsible for liaising with utilities, placing and paying for any orders for any necessary diversion works. **The Developer must provide proof of payment for the diversion works prior to the start of the tendering process.**
- When Technical Review is approaching its conclusion, the Developer's consultant will supply an updated scheme estimate which will be used to add the scheme to WCC's capital programme. At this point, site supervision fees will be estimated now that the full extents of the works are confirmed.

- After consultation with the Developer, WCC will book the road space for construction. The timings will be agreed with the Developer but if these change because of any delay to the following processes then this could mean a new notice has to be given and the scheme delayed accordingly.
- When Technical Review is completed and the necessary certificates certified then WCC will prepare the construction contract document and invite tenders from WCC Framework Contractors. The contract will be let using the NEC conditions of contract.
- When quotes are received the Developer will agree in writing for the contract to be awarded.
- **The construction contract will only be awarded when the legal agreement (eg. S278 or S38 etc.) has been signed, a bond is in place and appropriate fees paid including statutory undertakers fees . Further information on procurement, contract award and legal document requirements are provided in Part 10 of this Guide.**
- During the construction phase WCC will pay the Contractor's invoices and invoice the Developer in arrears.

2.3 General Design – Technical Review and general considerations

WCC will expect a Developer to appoint a competent Consultant to carry out the design and prepare the works information for inclusion in the NEC contract documents.

During the technical review phase of any S278 highway improvement, tasks will need to be performed by the Developers, the Developers' Designers and WCC's Technical Review Phase Team. It should be noted that in the absence of a Developer's Designer for a particular S278 scheme, the responsibilities of the Developer's Designer will rest with the Developer.

During the design phase, the Developer will perform the role of Client under the Construction (Design and Management) Regulations 2015 (CDM 2015) and will therefore appoint the Principal Designer. The Developer must ensure that the Principal Designer role is performed throughout the various contract stages (including the construction phases of the scheme) as required by CDM 2015. This will be essential in circumstances where construction phase redesigns become necessary.

Furthermore prior to technical approval commencing the Developer shall provide WCC's Technical Review Phase Team with:

- a copy of the Planning Permission for the associated development, including the details of any conditions;

- the submission of one complete set of the proposed scheme-specific tender drawings, any other relevant documents in an electronic format and a signed copy of the Design Certificate;
- the submission of the list of design standards intended to be used (or has been used), together with details of any proposed applications for Departures from Standards. As stated previously, the design standards used will be determined using the flow chart shown in Part 1 Figure 1.2 which will need to be agreed at pre-application meetings and form the basis of drawings included in the associated planning application. Note: departures from these standards are only likely to be accepted in exceptional circumstances;
- and details of any tree preservation orders (TPOs) for trees affected by the S278 Scheme.

To ensure a smooth transition from the design and technical review phases to the contract procurement and construction phases, the Developer shall submit for approval the CVs for the individual or individuals within the design organisation who will perform the actions of the Principal Designer before making the appointment. WCC will expect the appointed organisation, and the individual who will be performing the actions of the Principal Designer, to have suitable experience of designing works to be carried out:

- on live carriageways under appropriate forms of traffic management;
- with adequate provision for pedestrians and cyclists during the construction phase; and
- so that the completed works minimise the health and safety risks to those who will perform future maintenance operations.

The organisation undertaking the Principal Designer responsibilities shall be identified and a copy of the letter of appointment shall be supplied. Prior to the commencement of the procurement phase for the S278 highway improvement, the Principal Designer shall prepare and supply the Pre-construction Information in a format agreed in advance with WCC's Technical Review Phase Team.

More details of what work is required to be carried out by the Developer and the Developer's designer is contained in Annex 2.1

In addition to the above, the Developer shall provide a copy of the notice (Form F10) sent to the Health and Safety Executive and copies of all correspondence between the designer(s) and the Principal Designer during the design phase of the scheme.

2.4 WCC Standard Details - Designing for Maintenance

WCC not only insist on high quality designs using the correct design standards, but also on the use of an appropriate specification on materials which will ensure the new improvement can last for the appropriate duration before maintenance is required.

Warwickshire County Council's ['Surfacing & Structural Maintenance Strategy'](#) (LINK) and [Highway Construction Details \(HCD\)](#) (LINK) provide information on standard construction details and materials routinely used within Warwickshire. Developers should be aware that deviations from standard details may incur the requirement for commuted sums for future maintenance.

Warwickshire County Council requires design work which is not specified in WCC's HCD to be undertaken in accordance with principles outlined in The UK Roads Liaison Group (UKRLG) document 'Well-managed Highway Infrastructure – A Code of Practice'.

Design should accord with Recommendation 13 – Whole Life/Designing for Maintenance which states 'Authorities should take whole life costs into consideration when assessing options for maintenance, new and improved highway schemes. The future maintenance costs of such new infrastructure are therefore a prime consideration.'

Table 2.1 provides factors developers and designers must consider during the design process to ensure that adequate consideration is given to future maintenance requirements of schemes. This list is not exhaustive but includes a number of key issues that may need to be addressed. Failure to address issues may lead to the requirement for payment of commuted sums in order to manage specific maintenance challenges.

Issue	Check	Action
Scope and Scale		
Intended life of scheme	Is the scheme long life or 'temporary' and likely to be affected by future redevelopment?	Choose materials and products relevant to the life of scheme.
Nature of scheme	Is the scheme a 'unique' prestige project or a 'routine' standard one?	Choose materials and products relevant to the type of scheme.
Scope of scheme	Has the scheme been 'value-managed' to consider all possible marginal benefits?	All 'significant' schemes should be value managed.
Use of scheme	Is the scheme likely to be subjected to particularly 'heavy duty' traffic use with high rates of wear?	Select design and materials to mitigate these affects as far as possible.
Cost of scheme	Have the costs of future maintenance been calculated	Identify any extraordinary maintenance costs and report

	and included in future budgets/commuted sums?	these alongside construction costs.
Design Aspects		
Pedestrians and cyclists	Do proposals for footways and cycle routes fit the actual desire lines used?	Redesign to reflect actual paths to avoid erosion and later replacement.
Heavy goods vehicles	Is footway paving likely to be over-ridden by HGV or other parked vehicles?	Where necessary use heavy duty paving or prevent over-riding to avoid frequent costly replacement.
Grassed and planted areas	Are grassed and planted areas of a size and position to be effectively maintained?	Redesign or remove where necessary to avoid future poor appearance and later redesign.
Trees	Have trees been selected and positioned to avoid future problems with roots, obstruction or leaf fall?	Reselect or reposition where necessary to avoid potentially expensive future problems.
Traffic signs	Are traffic signs required to be illuminated or can they be reflectorised?	Maximise use of reflective signs to reduce energy costs.
Maintenance Operations		
Maintenance regime	Does the scheme require specialist maintenance regime?	Identify cost of specialist regime and, where appropriate, consider cheaper alternatives.
Cleansing	Does the scheme require specialist cleansing regime?	Identify cost of specialist regime and, where appropriate, consider cheaper alternatives.
Traffic management	Will maintenance require special traffic management?	Identify traffic management costs and minimise wherever possible, possibly through co-ordination with other works.
Maintenance access	Is there a safe and convenient access for plant and personnel?	Redesign scheme to provide safe and convenient access.
Materials and Products		
Specialist materials	Are the materials used for the scheme of standard or specialist nature?	If specialist materials used ensure availability of future replacements.
Durability of materials	Does the durability of the materials provide substandard, oblique, sufficient or excessive life?	Select materials relevant to the intended life and nature of the scheme.
Failure mechanism	How will material/product approach the failure condition – slowly/quickly?	Programme safety and service inspections on basis of risk assessment
Life extension	Are there any processes which could be used to extend useful service life at economic cost?	Investigate cost benefit of using life extension products.
Replacement practicality	Are there likely to be any difficulties in replacing failed	Undertake risk assessment and plan for the likely difficulties.

	sections?	
Replacement cost	Is the cost of replacement likely to be disproportionately high?	Consider alternative materials and products.
Reuse and Recycling		
Practicability of reuse	If the scheme is a short life scheme what is the scope re-using materials and products?	Choose re-useable materials and products wherever possible.
Practicability of recycling	What is the scope for recycling materials and products?	Where re-useable materials and products are not appropriate, use recyclable wherever possible.

Table 2.1 - Required Maintenance Considerations

In general accordance with The UK Roads Liaison Group (UKRLG) document 'Well-managed Highway Infrastructure – A Code of Practice' Warwickshire County Council defines the hierarchy of existing roads and footways in the County as shown in Table 1.1. The hierarchy of the road and footway must be taken into account when making design decisions.

2.5 The Highways Resilient Network

The Transport Resilience Review recommended that Local Highway Authorities should "Identify a 'resilient network' to which they will give priority, in order to maintain economic activity and access to key services during extreme weather" (DfT, 2014). This has subsequently been supplemented by Well-Managed Highways Infrastructure (A Code of Practice) which further recommends; "Within the highway network hierarchy a 'Resilient Network' should be identified to which priority is given through maintenance and other measures to maintain economic activity and access to key services during extreme weather." The resilient network is part of the winter maintenance network which is a defined network on which we undertake precautionary salting. The winter maintenance network is much more extensive covering approximately 46% of our total network.

Developers and designers must consider Warwickshire's currently defined resilient network when proposing changes to the existing highway network. Alterations to the network must not compromise the Authority's ability to maintain it during extreme weather conditions.

2.6 Pedestrian Facilities

The layout and design of footways should aim to provide convenient, appealing and safe, routes for pedestrians. The provision of adequate and convenient car parking facilities will be a significant factor in discouraging ad-hoc parking that might obstruct pedestrian routes.

Category	Description
1a. Prestige Walking Zone	Very busy areas of towns and cities with high public space and streetscene contribution
1. Primary Walking Routes	Busy urban shopping and business areas and main pedestrian routes
2. Secondary Walking Routes	Medium usage routes through local area feeding into primary routes, local shopping centres etc
3. Link Footways	Linking local access footways through urban areas and busy rural footways
4. Local Access Footways	Footways associate with low usage, short estate roads to the main routes and cul-de-sacs.
5. Minor Footways	Little used rural footways serving very limited numbers of properties.

Table 2.2 - Footway Hierarchy

Footways must be designed to take account of the type and function of adjacent carriageways; location of apparatus for statutory and other services; street furniture and pedestrian movements and vulnerable road users in the vicinity of schools, shops or other community buildings.

For sites identified as 'roads' using Figure 1.2 in Section 1; footways, footpaths and cycleways must be provided and designed in accordance with standards contained within DMRB. For 'streets' footways and footpaths should be designed and provided in accordance with Manual for Streets recommendations and requirements, of which have been used to inform Chapter 3 of this guide. If there is any uncertainty as to the Authority's requirements, developers should contact Warwickshire County Council to discuss further and confirm.

Pavement construction requirements for footpaths, footways and cycleways are detailed in Warwickshire County Council's Surfacing Strategy Guide and construction details are included in WCC HCD.

In addition to the standards published in DMRB & the guidance contained within Manual for Streets, the Department for Transport has published guidance on how to design for 'Inclusive Mobility'. WCC has considered this document when establishing the widths shown in the HCDs.

Therefore when designing footways and considering footway width, designers must note that clear width of **2000mm** is needed to allow two wheelchairs to pass one another comfortably. This should be regarded as the minimum under normal circumstances. Where this is not possible because of existing physical constraints outside of the Developer's control, 1500mm could be regarded as the minimum acceptable under most circumstances, giving sufficient space for a wheelchair user and a walker to pass one another. The absolute minimum, where there is an obstacle, should be **1000mm** clear space. The maximum length of restricted width should be 6 metres. If there are local restrictions or

obstacles causing this sort of reduction in width they should be grouped in a logical and regular pattern to assist visually impaired people.

When designing footways and considering footway gradient designers must note that there is general agreement among guidelines from many countries that an 8 per cent (1 in 12) slope is the maximum that may be used; anything greater than this will cause difficulties for manual wheelchair users. Most guidelines also agree that 5 per cent (1 in 20) is preferred. (A ramp is generally defined as a pathway with a slope of more than 5 per cent).

Steeper gradients than these can be managed by some wheelchair users, but only over very short distances (1000mm or less), for example on a ramp between a bus entrance and the pavement. Even over these short distances the maximum gradient used should be no more than 10 per cent (1 in 10). As a general rule, however, 8 per cent (1 in 12) should be used as the absolute maximum. Not only is the physical effort of getting up a steeper gradient beyond many wheelchair users, but there is also a risk of the wheelchair toppling over.

Crossfall on footways and footpaths is necessary to provide good drainage, but if too great, can make it difficult for wheelchair users. Recommendations contained in guidelines vary somewhat but, under normal circumstances, a figure of 2.5 per cent (1 in 40) should be regarded as the maximum acceptable. Where possible, it is preferable to have a crossfall between 1 and 2 per cent. Variable crossfall, such as may be found when travelling along a street with vehicle cross-overs, can be irritating as it affects the steering of wheelchair users and can also cause problems for people with walking difficulties. Officers should take these problems into account when considering on front garden parking in residential areas, which may result in the installation of cross-overs.

If there is a steep slope or drop at the rear of the footway, precautions must be made to prevent wheelchair users running over the edge or blind or partially sighted people walking over it. Guardrails and barriers at the side of or across footways should be at least 1100mm high; preferably 1200mm measured from ground level.

Guardrails should also be designed to prevent guide dogs from walking under the rails, but there should be sufficient openings between vertical members to ensure that children and wheelchair users can see, and be seen, through the railings. The top rail should have a smooth profile and, if intended to provide support, should be circular with a diameter of between 40 and 50mm

Where dropped kerbs and/or raised crossings are proposed level or flush access is essential for the majority of wheelchair users. Such access, either by dropped kerb or raised road crossing must be provided at all Zebra and controlled crossings and at other places side roads, access points to parking areas etc used by pedestrians. On longer side roads and residential roads, dropped kerbs should, where possible, be provided every 100 metres to avoid the need for

wheelchair users to make lengthy detours to cross the road having given due consideration to desire lines for pedestrians and inter-visibility.

Wherever possible the dropped kerb should be flush with the carriageway (maximum 6mm rounded bullnose if really essential – as per HCD) and have a maximum gradient of 8 per cent (1 in 12) on the direct approach; 9 per cent (1 in 11) on the flared sides. The minimum width of the flush area should be 1200mm (up to 3000mm where there are heavy pedestrian flows) though 1000mm is acceptable adjacent to car parking reserved for disabled users. Where a dropped kerb is provided at a controlled road crossing it should be the same width as the crossing itself (minimum 2400mm). At the foot of the dropped kerb, the camber of the road should be no more than 5 per cent (1 in 20) for a wheelbase distance (approximately 600mm) away from the kerb line. This avoids the wheelchair front wheels or footrest being caught by an opposing upslope.

If the width of the footway is sufficient there should be a level area, 1000mm minimum width, along the rear side to allow easy passage for wheelchair users who are not crossing the road.

Whenever a footway or other area used by pedestrians is being constructed, repaired or renewed, consideration should be given to incorporating any appropriate tactile surfaces. Where provided, tactile surfaces must be provided in strict accordance with the latest available guidance and advice.

If the provision of ramps or handrails within the public highway are determined to be necessary; developers, designers and engineers must refer to DfT guidance document 'Inclusive Mobility' for advice and guidance in order to provide a feature that is suitable and fit for purpose.

2.7 Cycle Facilities

Developers will be expected to ensure that new developments (residential, retail or employment sites) are connected to the local cycle network by safe, convenient and attractive cycle routes to enable residents to cycle to town centres, rail stations, educational establishments and other key destinations.

As mentioned in Part 1. Developers should refer to 2020 Government Guidance for designing high-quality, safe cycle infrastructure when planning their sustainable transport strategy.

<https://www.gov.uk/government/publications/cycle-infrastructure-design-ltn-120>

General Principles

New developments should be designed to encourage cycling for local journeys, in line with the National Planning Policy Framework, national transport policy objectives and Warwickshire's Local Transport Plan. Safe, direct and attractive

cycle routes should be provided within the site and to connect to the surrounding network, to enable residents to cycle to town centres, rail stations, educational establishments and other key destinations.

The internal network of roads and streets should be designed in accordance with Manual for Streets principles, such that cyclists can be accommodated safely within the road network. Where traffic levels and speeds are higher, such as on spine roads, dedicated provision for cycling is required (see below). The above should be complemented where appropriate by short, direct links for pedestrian and cyclists to create a permeable network of high quality links, connecting up streets and different areas of the development. It is important to ensure that good access is provided to the cycle route network from all areas of the site.

The key design principles for providing for cyclists are set out Local Transport Note (LTN) 1/20 and West Midlands Cycling Design Guidance (Second edition 2019).

Dedicated cycling infrastructure

Where dedicated cycling infrastructure is provided adjacent to spine roads, this will ideally take the form of a cycle track, which is both segregated from traffic and separate from provision for pedestrians. The width requirements for cycle tracks will depend on the location and the expected level of use. Design details for different types of segregated cycle tracks can be found in LTN 1/20 and the West Midlands Cycle Design Guidance.

Shared use footway / cycleways (segregated or unsegregated) may be appropriate on spine roads / access roads at some locations, particularly where pedestrian and cycle usage is likely to be lower. A minimum surfaced width of 3 metres will be required for unsegregated shared use routes, with greater width required where pedestrian and cycle flows are expected to be high, such as on routes to schools. For segregated shared use routes, a minimum surfaced width of 4 metres is required to provide space for pedestrians and cyclists. Segregation can take the form of physical separation e.g. a verge between pedestrians and cyclists or different surfacing / markings to delineate the cycling / pedestrian provision.

Whilst cycling infrastructure provision at new development sites should be guided by the principles and design guidance in LTN 1/20 and WMCDG, developers should consult with Warwickshire County Council's Transport Planning Unit to ensure new provision is tailored to specific local requirements.

Crossing points

Interruptions to cycle routes should be minimised, to ensure that cycling is as convenient and attractive as possible. Where cycling routes cross minor side roads with very low traffic flows, designers should give consideration to providing cycle priority crossings in accordance with LTN 1/20 and WMCDG.

Where cycle routes cross busier roads, provision of refuges or Toucan crossings may be necessary.

Signing

Direction signing can promote the use of new cycle routes, highlighting how they connect to the surrounding cycle network and key destinations outside the site. Cycle direction signs (including destinations / distance as appropriate) should be included in cycling infrastructure proposals and agreed with Warwickshire County Council's Transport Planning Unit at an early stage.

Connections to the wider cycle network

It is vital that cycling provision at new developments connects safely and conveniently to the surrounding cycle network to ensure that cycling is a viable choice for local journeys. Developers will be expected to provide contributions towards the infrastructure required to connect development sites to key local destinations and / or the existing cycle network.

2.8 Public Transport, Bus Stop Provisions and Services

Warwickshire County Council acknowledge the role local bus services and supporting bus and highway infrastructure have in delivering connectivity between new development, urban centres, major employment sites and other prominent generators of local trips. The position of the County Council is aligned with national and local policy as stated below:

- The National Planning Policy Framework steers development towards promoting its connectivity with sustainable transport in order to facilitate sustainable development and also contribute towards wider sustainability;
- The National Planning Policy Framework also promotes the integration of planning and sustainable transport in order to provide attractive alternatives to travelling by car to access employment, education, health facilities, leisure, amenities and health objectives - aimed at providing people with a real choice about how they travel;
- The County Council requests provision and/or improvements to local bus services in association with new development in alignment with the policies established in the Warwickshire Local Transport Plan 2011-26, in respect to promoting public transport connectivity between new development and local amenities; and
- The Warwickshire Local Transport Plan 2011-26 also specifies that all occupiers within a new development should be no further than 400 metres away from the nearest bus stop, in line with policy stated in

the in respect to connectivity between new development and local bus services.

For further information relating to Warwickshire County Council's requirements please refer to *Annex 2.2 Warwickshire County Council Local Bus Service Provision and Supporting Bus and Highway Infrastructure Joint Developer Guide and Design Guide*.

2.9 Public Rights of Way (PRoW)

Developers & Designers must be aware of Public Rights of Way that either cross new developments or are in the area surrounding new developments. WCC would not expect any PRoW to be lost as a result of new development.

The Highway Authority may seek works or a financial contribution from developers to improve Public Rights of Way either on, or in the area surrounding new developments, to mitigate the additional use new residents will generate. Where the Public Right of Way or relevant part thereof, is over land within the control of the developer, the developer will be required to complete the works under a Section 278 agreement. For improvements to Public Rights of Way outside of the developer's control Warwickshire County Council may request a financial contribution and carry out the appropriate works. Such improvements may be secured by a Section 106 Agreement or by a suitably worded planning condition.

The contribution would usually be used for improvements to public rights of way within 1.5 miles of the development, this being the radius used by a typical dog walker taking a 3 walk from the development and dog walkers usually being the most frequent users of public rights of way surrounding a residential development.

The contribution amount requested is usually calculated by means of a formula which takes into account the following:

- the estimated length of public rights of way within a 1.5 radius of the development
- the estimated cost of improvements to this network
- the cost per resident of these improvements based on residency figures for local wards
- the estimated number of future residents based on the type and number of houses

2.10 Traffic Signals

A typical example of highway mitigation works might be the installation of a traffic signal junction, signalised roundabout, controlled pedestrian crossing, etc.

Any such scheme shall be designed in accordance with relevant design standards by a competent person(s) and issued with an approved LinSig model (latest software version). CV's will need to be provided for the individual(s) who have designed and approved the scheme/LinSig model. If the design or model is not fit for purpose, WCC reserve the right to carry out a design audit by an external organisation at a cost.

We reserve the right to only implement schemes that are justified in accordance with County Council's policies for: [\(LINK or ANNEX?\)](#)

1. [The Provision of a Traffic Signal Junction](#)
2. [The Provision of Pedestrian Crossings and Pedestrian Facility at Traffic Signals Junctions](#)

If required by the Principal Designer, as a service we can assist them with the detail design of the signalisation scheme for the highway works based upon their detailed road layout drawings issued to us. A quotation for the detail design fees for preparing the system specification document (Appendix 12/5) and the controller specification form (TR 2500) can be provided on request, by contacting tcis@warwickshire.gov.uk.

The County Council will tender for the scheme and appoint the Principal Contractor once the Section 278 Agreement is signed.

WCC will normally request the supply and install of traffic control equipment to be installed as part of the highway works by a specialist contractor appointed by the Principal Contractor.

As described in paragraph 2.2 and in more detail in Part 10, the highway works will be supervised by WCC. Where traffic signal equipment is part of the works information, site supervision, factory acceptance test, site acceptance test, commissioning etc. will be carried out by WCC and this will be included in the site supervision fees associated with the S278 Agreement.

The installation will be subject to a commuted sum towards the future maintenance of the traffic signal equipment and one upgrade. The current commuted sums are listed in Part 10 *ANNEX 10.1 Highway Works Agreements*

2.11 Safer Routes to School

Where development will have a direct impact on a local school, or require a new school, our Safer Routes to School team will carry out an assessment to determine which routes would be utilised by the additional pupils resulting from a development and what infrastructure is required to ensure that those additional pupils have a safe walking route to school.

Safe direct routes that encourage parents to leave the car at home will be required on all new developments. Financial contributions may be sought to mitigate the impact on additional children on existing safe routes or new safe routes to school required, this may include off-site works. Warwickshire must also ensure that all school staff (including ancillary staff) can park within the school grounds and not in adjacent streets.

Where appropriate, Highway contributions to establish a safe walking route will be considered before seeking a school transport contribution.

Below is a list of measures that will be considered to ensure safe routes to school.

Essential:

- Zig zag lining
- School warning signs
- Dropped kerb crossings
- Continuous footways to the front of the school
- Pedestrian and vehicle accesses being separate
- School Travel Plan

May be required (dependent on a case by case assessment)

- Pedestrian guard railing
- Additional signalling
- Additional lining
- 20mph advisory or mandatory speed limits
- Traffic calming
- School crossing patrol site
- Pedestrian refuges
- Pedestrian crossings (zebra or puffin)
- Cycle facilities – continuous off carriageway cycle infrastructure with crossings as necessary

2.12 Construction Traffic

Where construction is likely to impact on the flow, operation of the highway network, Developers must submit a Construction Management Plan and a Dilapidation survey as described in Part 1 paragraph 1.5 for approval by the Authority prior to commencement of construction.

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