Client Requirements Document
Anglia CP5 Level Crossing Reduction Strategy

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Document History

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1.0	08-01-15	Andy Kenning	Initial Issue
1.1	13-02-15	Andy Kenning	Updated minor typo errors. Appendix D added detailing crossings where NR is not requesting status change.
1.2	02-03-15	Andy Kenning	Cambridgeshire County Council contact details changed.

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1 Purpose

The Network Rail company view is that as many level crossings should be removed from the network as practicably possible and the purpose of this CRD is to set out the CP5 level crossing reduction strategy for the Anglia Route, to provide the high level thought process and show the framework to deliver further reductions in the numbers of level crossings. This strategy is to explore the opportunities of crossing reduction by use of compulsory powers to alter the public rights of way network. The Anglia Route has a number of enhancement schemes to increase capacity, speed, and length of trains across the network in CP5.

- F2N (Felixstowe to Nuneaton Freight enhancement)
- WAML (West Anglia Main Line Capacity improvement)
- Great Eastern Main Line Capacity Improvements (Bow Junction)
- Great Eastern Main Line line speed improvements
- Soham Doubling (doubling of a single line to increase capacity)
- Ely North Junction (doubling of a junction to increase capacity)
- Felixstowe Doubling (doubling of a single line to increase capacity)
- Sizewell C Construction (increase in capacity for construction materials) – 3rd party – EDF Energy

Anticipated traffic growth areas for CP6

- Three additional services on the Great Eastern Main Line starting north of Colchester to London
- One additional Norwich to Cambridge service
- One additional Ipswich to Ely service (potentially through to Peterborough)
- Felixstowe to Nuneaton freight growth – up to 60 tpd.

Level crossings are a limiting factor in some or all of these schemes and there needs to be a holistic approach to the management of level crossings. It is intended that the output of this CRD shall support the enhancement schemes as well as reduce crossing risk across the Anglia Route.

This CRD is valid for the CP5 period. Once CP5 has ended no further RRDs shall be produced based on this CRD. Any RRDs that are still current at the end of CP5 shall continue until project closure.

1.1 Background Information

1.1.1 Closure difficulties

Public footpaths and bridleways can be closed by rail crossing diversion or extinguishment orders (expedient in the interests of public safety) or normal public path orders (diversion to make more commodious/better serve the landowner/not necessary). However, all of these are subject to challenge which can result in public inquiry, where success is not guaranteed. This is therefore a risky and time-consuming strategy. The legal costs of a basic application are around £3k–4k.

All pubic highways can be closed or downgraded by application to a magistrate's court, on the grounds that they are not needed for public use, or should be diverted. Again, this is

risky as there is no guarantee magistrates will agree to make an Order. Cost of an application about £3k.

Building bridges often requires Planning Permission, land take and other problems which increase the cost (e.g. crossings, where a landowner held us to ransom).

The best way to close public highways is through a Transport and Works Act Order. In that way, all proposed changes and consents can be consulted in advance, bridges provided where appropriate, and we can argue using the greater public benefit of improved rail services.

User Worked Crossings (UWC) generally now only exist where there is a need to access land where no other practicable access is available; this is as a result of the good efforts during CP4. Closure of these types of crossings is achieved as a private negotiation between Network Rail & the land owners or authorised users.

1.1.2 Decision-making

Little-used crossings should be proposed for extinguishment in the first instance. Failing this, diversion is usually cheaper than a bridge, especially if only statutory compensation is payable. For necessary routes, where closure would result in loss of access to countryside or facilities, and there is a decent level of usage (e.g. Motts Lane, Ingatestone Hall), a suitable bridge should be proposed.

A little used crossing today can suddenly become a big problem when local circumstances change and the usage dramatically increases. This leads to closure objections and could lead to requiring the deployment of technology to manage the risk. Therefore it is important to start with the least used crossings and work up to the major crossings.

1.2 Stakeholders

Clearly if Network Rail is planning to alter public highways it must consult with the stakeholders concerned.

The highway authority for an area is responsible for recording and maintaining highways, and defending the public's right to use them. Before legal alterations to the highway network are made, the highway authority has pre-consultees and statutory consultees, who represent local and national strategic interests. All alterations are also advertised to allow public comments to be received. All consultees should be regarded as consultees for any Transport and Works Act Order.

The RRDs will need to detail the highway authority, district/borough council, parish council, all relevant consultees for the affected area, and any other stakeholders.

In order to be able to present a holistic view of Network Rails proposed crossing alterations, it is the Anglia Route strategy to produce county-wide proposals of changes. This way it should be clear to the highway authority that Network Rail is looking to provide a balanced approach and not simply looking to extinguish all public highways that cross the railway.

The following high level stakeholders have been identified:

Name	Role	Contact
Norfolk County Council	Highway authority	
Suffolk County Council	Highway authority	
Cambridgeshire County Council	Highway authority	
Hertfordshire County Council	Highway authority	
Essex County Council	Highway authority	
Southend on Sea	Highway authority	
Thurrock	Highway authority	
London Boroughs and TfL	Highway authority	
Office of Rail Regulator	Governing Body	
Environment Agency	Statutory consultee (flood risk etc.)	
Natural England	Statutory consultee (environment)	
Liabilities	Paralegals	
Town Planner	Land Consents	
Public Affairs Manager	Public Relations	
Richard Schofield	Route Director (Anglia)	
Eliane Algaard	Director of Route Asset Management	
Carl Hunt	Route Asset Manager (E&P)	
Mike Essex	Route Asset Manager (Signalling)	
Nigel Wilson	Route Asset Manager (Track)	
Dave Flatman	Route Telecoms Engineer	
Jenny Sutter	Route Asset Manager (B&C)	

Name	Role	Contact
Steve Valentine	Gauging Engineer	
Sean Cronin	Sponsor	
Level Crossing Manager WA	Risk Manager	
Level Crossing Manager GE	Risk Manager	
The Ramblers	User Group (walkers)	
Sustrans	User Group (promoting non-motorised transport)	
Essex Bridleways Association	User Group (equestrians)	
Open Spaces Society	User Group (promoting access to land)	
Auto Cycle Union	User Group (motor vehicles)	

2 General Description of the Scheme

2.1 Business Objectives (Aspirations)

2.1.1 A Fresh Approach

There is always merit in constantly reviewing our level crossings and where circumstances have changed there maybe the potential to achieve a closure. That said as the numbers of UWCs diminish opportunities will become scarcer.

As discussed in section 1 altering public highways is a risky business when one objection, if not withdrawn, could trigger a public inquiry. .

In order not to waste time and resources it would be appropriate to apply for the use of compulsory powers. These powers can be obtained by means of a Transport & Works Act Order (TWAO). If such an order was prepared and, following appropriate hearings, approved by the Secretary of State for Transport, Network Rail would be granted the powers to carry out the works described in the TWAO. Work can start up to five years after the approval of the TWAO.

If five years lapse and no works are carried out then the TWAO powers will have lapsed and Network Rail will no longer be able to carry out the work detailed in the TWAO.

It is not necessary to use all of the powers granted. For instance if ten crossing are proposed to be altered by means of diversion in a TWAO, it could be that only one is actually altered in the five years of Network Rail having the power to do so.

2.1.2 Anglia Route Strategy

Anglia Route is adopting a phased approach to altering its crossings. As discussed earlier each Highway Authority would have its crossings assessed for each phase. There will be multiple documents for each phase, one for each Highway Authority.

2.1.2.1 Phase 1

Mainline crossings that clearly are unused or have extremely little use would be extinguished. Also crossings that would be included are those that have a nearby alternative route utilising existing bridges as a means of crossing the railway. The means to get to the alternative crossing point would be provided on Network Rail land wherever possible.

2.1.2.2 Phase 2

Branch line crossings that clearly are unused or have extremely little use would be extinguished. Also crossings that would be included are those that have a nearby alternative route utilising existing bridges as a means of crossing the railway. The means to get to the alternative crossing point would be provided on Network Rail land where ever possible.

2.1.2.3 Phase 3

Once phases 1 & 2 have been assessed it will leave a number of non-vehicular crossings where a bridge is required. This could be one bridge serving two or more footpaths. It could be where in order to alter a crossing a UWC needs to be removed as well, and this may need a new access track to be constructed.

2.1.2.4 Phase 4

Phase 4 would cover where roads are proposed to be downgraded to bridleway or footpath. This would include any Signalling alterations to alter the crossing protection accordingly. It would also cover UWCs where an alternative means of access has been identified and needs powers to enforce the provision of access.

2.1.2.5 Phase 5

Phase 5 would cover where roads crossings are to be bridged. Due to the nature of these types of alterations this phase is likely to be a CP6 work stream.

2.1.2.6 No change

We recognise that there are many level crossings where it is not feasible to extinguish or divert the right of way. Whilst we may consider upgrading the technology at these level crossings for operational reasons, we are not seeking to alter the rights. Our long term aspiration will generally be for a bridge solution, when justified by a positive business case and backed with available funding. Any bridges will likely be constructed outside the timescales of this document. The crossings that have been identified at the time of writing are listed in Appendix D.

The Route shall capture the detail of the Anglia Route crossings and which phase they fall into in a spreadsheet (Anglia crossing reduction listing.xls). The first version of this spreadsheet is attached in Appendix B at the rear of this CRD.

Where renewals of assets are required and renewal funding is available, it may be that this

drives a change to the level crossing before a particular phase is completed. For instance if Signalling were to be renewing equipment at a number of level crossings, this may be better invested in closing the crossings. An example of this is at Waterbeach, where there are three crossings that can be closed with the provision of a new link road, one road bridge and two foot bridges. This arrangement is beneficial over having three Obstacle Detection crossings within a mile of each other and close to the renewal budget.

2.2 Scheme Definition

By assessing each crossing to ascertain which phase it falls into means that should a crossing fail to be suitable for the phase it is being assessed for it simply gets moved into the next phase. Each phase provides a greater level of investment and infrastructure than the previous stage. As the Anglia Route builds up a picture of crossing works that will lead to a reduction in crossings it will allow the Anglia Route to focus its efforts on the remaining crossings, thus driving the development of solutions for these crossings.

The initial identification of potential diversion ideas has already been carried out. Mostly these are for Phase 1 & 2 diversions/extinguishments. Some further crossing phases have been identified from signalling assessments already carried out. These later phases shall be detailed in their own RRDs to capture the detail required. This will be an ongoing assessment of the Anglia Route's level crossing landscape. New crossings shall be added to the phases as they are identified and solutions found.

2.2.1 Phase 1 & 2 Scheme Definition

The phase 1 & 2 RRDs developed from this CRD is to further develop these diversions ideas into deliverable designs. These phase 1 & 2 RRDs shall be by county to make the Stakeholder management easier and keep the number of crossings in manageable numbers. All these diversions / extinguishments shall be carried out as part of a Transport & Works Order under section 118 or 119 of the Transport Act 1980.

Each crossing listed below shall have the following assessments carried out and providing that it can be achieved, the next assessment shall be carried out;

1. The diversion assessed for buildability based on the potential users and their physical abilities. This may be determined by other physical features along the footpath such as the presence of stiles or steps.
2. Diversity impact assessment needs to be carried out (to be completed by Network Rail team).
3. A brief design shall be produced to capture the alterations required.
4. Land clearance application made and approved.
5. The cost of each diversion shall be created against the design. These costs shall include recovery of all the current crossing assets (including whistle boards if fitted) and making good the boundary fencing to ensure there are no trespass issues following the diversion. Costs shall also include if any alterations required to the OLE (this shall be indicative at this stage, AIP shall be produced at GRIP3).
6. Environmental impact assessment for the impact of the diversion / extinguishment / downgrading.
7. Pre-Consultation for the diversion / extinguishment.
8. It is assumed that the diversions can be carried out within the Network Rail land ownership boundary. If not then land owner consent will be required for route of public path.
9. If land consents are required a land search shall be completed to identify the land owner/s.

2.3 Boundaries and Relationships

This CRD affects the entire Anglia Route. Whilst there may be sections of railway in a county that are not in the Anglia route, the project works shall be confined to crossings that fall within the Anglia Route only.

A number of ELRs do not have any level crossings on and these shall be excluded from any works. All the affected ELRs are detailed in the spreadsheet attached in Appendix B.

Strategic Route:	D
Route Number:	
Operating Route:	Anglia

2.4 Assumptions, Dependencies, Constraints & Risks

2.4.1 Assumptions

Reference	Details
A-CP5LX-1	That the diversionary routes are buildable.
A-CP5LX-2	That funding will be made available for the diversions to be built.
A-CP5LX-3	That the diversions can be carried out within the existing Network Rail land ownership, or A-CP5LX-4
A-CP5LX-4	That consents from land owners for the diversions are obtained where it is not possible to utilise NR land.
A-CP5LX-5	Any required land consents will be available.

2.4.2 Dependencies

Reference	Details
D-CP5LX-1	Liabilities are able to support the TWAO application.
D-CP5LX-2	That the County Councils are willing to work with Network Rail and support this structured approach to level crossing management

2.4.3 Constraints

Reference	Details
C-CP5LX-1	The strategy is limited to the Anglia Route.

2.4.4 Risks

Reference	Details
R-CP5LX -1	Not all the diversionary route will be buildable.
R-CP5LX -2	That there may be alternative proposals from external stakeholders.
R-CP5LX -3	That the secretary of State for Transport will not sign off the order
R-CP5LX-4	The County Councils are not supportive of this structured approach to level crossing management.

2.5 Whole Life Cost Strategy

Whole Life Cost Modelling (WLCM) will be applied to the later phases. Phases 1&2 do not need WLCM produced for them provided that the over all cost is equal to or less than the risk reduction cost. The closure of the crossing is best as it removes the risk going forward for ever. Phases 3 – 5 will be subject to WLCM and Cost Benefit Analysis (CBA) to demonstrate that the proposed closure is cost effective.

Alterations to the Overhead Line Equipment (OLE) shall be subject to a Cost Benefit Analysis to understand the benefit in altering the OLE wire heights. This is to compare the options of altering a crossing at a time, or waiting until either wire renewals, or other improvement projects.

2.6 Scheme Key Milestones and Configuration States

It is anticipated that Phase 1 & 2 crossings shall be identified by the end of CP5 year 1. During CP5 year 2 it is expected that Phase 1 & 2 crossings shall be developed into buildable solutions and costed. Key milestones would be;

- Confirmation that the diversions are buildable
- Design for each diversion that is buildable
- Costs produced for each of the designed diversions

It is expected that at the end of CP5 year 2/beginning of year 3 the TWAO shall be drafted and presented to the Secretary of State for Transport. All being well by the end of CP5 year 3 Network Rail will be provided compulsory powers to carry out the works detailed in the Phase 1&2 TWAO.

Phase 3 is expected to be worked up in CP5 year 3. This would enable construction to start in year 4 and completion in year 5.

Phase 4 is expected to be developed in CP5 year 2 & 3 depending on the complexity. It is hoped that the Route would see commissioning of these projects in year 5 or early CP6

2.7 Scheme Acceptance Strategy

This scheme shall follow GRIP and acceptance for each stage shall be at each stage gate as shown in the project programme.

Once the diversions have been designed, consulted and costed they shall be presented to the Sponsor for acceptance and inclusion in the Transport & Works Order, before the completion of GRIP3. This will allow the Sponsor to ‘group’ projects into TWAO to keep costs down and provide a strategic approach to the TWAO application.

2.8 Scheme Security Strategy

Nothing identified at the time of writing.

Reqt ID	Source Reference	Requirement and Heading	Priority	Acceptance Criteria	Supporting Information	Assumption
		3 Scheme Requirements				
		3.1 Safety Strategy - Requirements				
CR-CP5LX-1101	CSM Policy - PAN/PMSEP/ CD/ADV /0081	The Scheme shall be delivered in accordance with the Common Safety Method (CSM)	High	- Preliminary System Definition - CSM Assessment Completed and Category assigned - CSM Deliverables completed in the scheme deemed to be "significant change".	None identified	None
CR- CP5LX - 1102	Construction (Design and Management) Regulations 1994	The scheme shall be delivered in accordance with the CDM Regulations	High	- Personnel (posts) are designated and responsibilities discharged - Delivered - Demonstrable evidence of compliance is provided	Construction (Design and Management) Regulations 1994	None
CR- CP5LX - 1103	Network Rail Safety Policy	All meetings in connection with this project shall have a standing agenda item of Safety at the beginning of each meeting.	High	Meeting agendas and minutes shall be held as part of the project documentation file.	None identified	None

Reqt ID	Source Reference	Requirement and Heading	Priority	Acceptance Criteria	Supporting Information	Assumption
CR- CP5LX - 1104	NR/L2/TRK/5100	The closed level crossings shall be inaccessible to the public and appropriately fenced over.	High	Compliant to the Company standard for lineside fencing.	None identified	None
		3.2 General Scheme - Requirements				
CR- CP5LX - 1111	Sponsor Instruction	The Sponsor Instruction and Client Requirements Document Contents shall be adhered to.	High	Demonstrable evidence of compliance.	None identified	None
CR- CP5LX - 1112	NR/L1/INI/PM/GRIP /100	The scheme shall be delivered in accordance with GRIP	High	Completed and approved GRIP stage gate at intervals laid down in the Sponsor Instruction.	None identified	None
CR- CP5LX - 1113	Countryside and Rights of Way Act 2000	The diverted / extinguished rights of way shall be updated on the definitive maps for the county	High	Definitive map updated to show correct status.	None identified	None
CR- CP5LX - 1114	Department for Transport Accessible Train Station Design for Disabled People – A code of practice	Design Guidance for Accessibility for Reduced Mobility shall be followed during early development and design.	High	All Accessibility requirements are provided (including step free access to new platforms and fire escape arrangements). Where this is not possible mitigation measures and safe systems must be provided.	None identified	Only used where access to a station is required

Reqt ID	Source Reference	Requirement and Heading	Priority	Acceptance Criteria	Supporting Information	Assumption
CR- CP5LX - 1115	Equality Act 2010	Governing act regarding equality. In relation to this project particular attention must be given to provide access for those with reduced mobility and sight.	High	Demonstrable evidence of compliance and inclusion in development and design.	None identified	None
CR- CP5LX - 1116	Based of new bridge widths	New footpath widths shall be 2metres wide as a minimum	High	New path to be of the minimum width.	None identified	None
CR- CP5LX - 1117	Based on new bridge widths	Any new bridleway paths shall be 3metres wide as a minimum	High	New path to be of the minimum width.	None identified	None
CR- CP5LX - 1118	Route Strategy	Any footpath crossing that appears to have been abandoned shall be planned to be extinguished in phase 1 or phase 2.	High	No abandoned footpaths left on the Anglia Route.	None identified	None
CR- CP5LX - 1119	Route Strategy	Any footpath / bridleway crossing that have a near and practical alternative crossing point that provides a better level of protection shall be diverted in phase 1 or phase 2.	High	No footpaths / bridleways are left remaining when there is a close by alternative crossing point.	None identified	None
CR- CP5LX - 1120	Route Strategy	Any footpath / bridleway that can not be removed from the railway network in phase 1 or phase 2 shall be developed for phase 3.	Medium	Footpath / bridleways that were not extinguished or diverted are planned to be provided with a bridge.	None identified	None
CR- CP5LX - 1121	Route Strategy	Any User Worked Crossing (UWC) that has an alternative access route shall be developed for phase 3.	Medium	Where there is the opportunity to close a UWC by means of a new access route are planned to be provided with the new route.	None identified	None

Reqt ID	Source Reference	Requirement and Heading	Priority	Acceptance Criteria	Supporting Information	Assumption
CR- CP5LX - 1122	Route Strategy	Any Signalling developed closure / downgraded shall be developed along the phase 4 strategy of this CRD. It shall be recorded in the Strategy listing spreadsheet.	High	Where closures are provided through Signalling developments the crossings are closed or downgraded.	None identified	None
CR- CP5LX - 1123	Company Requirement	Diversity Impact Assessment	High	Production of a report detailing the diversity impact of the proposed changes.	None identified	None
		3.3 Performance Aspiration - Requirements				
CR- CP5LX - 1131	Author requirement	Any temporary TSR's that are in place as a result of the crossing having insufficient sighting shall be removed once the crossing is closed.	Medium	Removal of the TSR	Operational publications will detail where and what speeds are in force.	None
CR- CP5LX - 1132	Author requirement	Any operational restrictions regarding the standing of trains at signals due to the train blocking the footpath shall be removed.	Medium	Removal of local instruction	None identified	Only applicable to crossing where standage is an issue
CR- CP5LX - 1133	Author requirement	Where a PSR exists due to sighting requirements of a crossing that is being removed, the project shall investigate the potential of removing the PSR and increasing the line speed.	Low	Increase in line speed over the section of line where the crossing used to be located.	None identified	That the other railway infrastructure can withstand a speed increase.

Reqt ID	Source Reference	Requirement and Heading	Priority	Acceptance Criteria	Supporting Information	Assumption
		3.4 Environmental Requirements				
CR-CP5LX-1141	Environmental Management Manual	Adherence to corporate policies in development, design and construction.	High	Production of the Environmental Impact Assessment for suitable crossings	None identified	None
		3.5 Maintenance Strategy - Requirements				
CR-CP5LX-1151	Author requirement	Any roadway that is built to be used as a public highway shall be built to be adopted by the Highway Authority for on going maintenance	High	Adoption of the new roadway by the Highways Authority	None identified	None
CR-CP5LX-1152	Network Rail Business systems	Where assets are removed from the railway the appropriate data base shall be update to reflect the current state of the railway. This shall include (but not limited to) such systems as Ellipse, GEOGIS.	High	Asset data records correctly showing the status of the assets.	None identified	None

Reqt ID	Source Reference	Requirement and Heading	Priority	Acceptance Criteria	Supporting Information	Assumption
		3.6 Reliability, Availability, Maintainability Requirements				
CR-CP5LX-1161	NR Business Systems	Were crossings are closed; Ellipse shall be updated to remove the Maintenance Schedulable Tasks (MST) from the maintainers work bank. This shall cover all disciplines.	High	Ellipse data updated	None identified	None
CR-CP5LX-1162	NR Business Systems	Where crossings are closed ALCRM is updated to show the crossing as closed and no longer part of the network.	High	ALCRM data updated	None identified	None
		3.7 Network Rail Asset Requirements E&P				
CR-CP5LX-1171	E&P Asset Policy	Where a level crossing is being removed the Overhead Line Equipment (OLE) contact wires shall be adjusted to be as near to the nominal wire height of 4.7metres as practical.	Low	Contact wires are at the optimum height for that area of line.	A cost benefit analysis shall be applied to understand the operational benefits of altering the wire heights per crossing	That there is OLE in the area. & That the current wire heights are compliant to standards (run-ins / run-outs).

Reqt ID	Source Reference	Requirement and Heading	Priority	Acceptance Criteria	Supporting Information	Assumption
CR-CP5LX-1172	E&P RAM requirement	Where a level crossing is being removed and the current (OLE) contact wires arrangements are not compliant to standard, the wire heights shall be adjusted to be as near to the nominal wire height of 4.7metres as practical.	High	Contact wires are at the optimum height for that area of line.	Records of existing deficient wire heights (including run-in / run-outs)	That there is OLE in the area
CR-CP5LX-1173	E&P RAM requirement	Where new bridges are to be constructed they shall be bonded to the traction return where appropriate.	High	New structures are suitably bonded to be compliant to Network Rail company standards.	None identified	That there is OLE in the area
		3.8 Network Rail Asset Requirements Signalling				
CR-CP5LX-1181	NR/L2/SIG/11201	Where signalling assets are to become redundant as part of the crossing removal, they shall be fully recovered (including any train detection sections if required).	High	Signalling equipment recovered in a controlled manner with the records correctly showing the status of the assets.	None identified	That there are signalling assets required to be recovered.
CR-CP5LX-1182	NR/L2/SIG/11201	Where crossings are removed that have telephones fitted the signallers display system (diagram, panel or VSCS) shall be updated to shown the removal.	High	Signallers display system updated to reflect the current state of the infrastructure.	None identified	None

Reqt ID	Source Reference	Requirement and Heading	Priority	Acceptance Criteria	Supporting Information	Assumption
CR-CP5LX-1183	Signalling RAM requirement	Where crossings are removed the Signalling RAM shall be informed so that a plan can be put in place to get them removed from the Signalling diagrams (if shown).	High	That it is recorded where footpath or UWCs are recovered and the Signalling RAM is presented with this information.	None identified	These alterations shall be managed by means of a records deficiency form and updated when the record is next worked on.
CR-CP5LX-1184	Signalling RAM requirement	Where whistle boards are to be removed, the Signalling RAM shall be informed so that a plan can be put in place to remove them from the signalling diagrams.	High	That it is recorded where whistle boards are recovered and the Signalling RAM is presented with this information.	None identified	These alterations shall be managed by means of a records deficiency form and updated when the record is next worked on.
		3.9 Network Rail Asset Requirements Track				
CR-CP5LX-1191	NR/L2/TRK/2102	Crossing deck (if fitted) shall be removed (including edge beams, if fitted) and track inspected to ensure that all the track components are still serviceable.	High	No evidence of crossing on site & track components signed as fit for purpose.	None identified	None
CR-CP5LX-1192	NR/L2/TRK/2102	Where a crossing deck has been removed sleeper spacing shall be checked and if required corrected with serviceable spares to match the existing assets.	Medium	Sleeper spacing matches that of the approaches and all track components are of the same type.	None identified	None

Reqt ID	Source Reference	Requirement and Heading	Priority	Acceptance Criteria	Supporting Information	Assumption
CR-CP5LX-1193	NR/L2/TRK/2102	Where level crossings have been removed the ballast shoulder and cribs shall be reinstated to provide suitable track support	High	Track support system shall be in accordance with Network Rail Company standard.	None identified	None
CR-CP5LX-1194	NR/L2/TRK/3011	Where signalling equipment has been involved and train detection is reduced, any redundant Insulated Rail Joints (IRJ) shall be removed from the track. If in Continuous Welded Rail the rail shall be stressed to Level 1 (if <36metres of new rail) or level 2 (if > 36metres).	High	Redundant IRJs removed and stressing certificates provided	None identified	None
		3.10 Network Rail Asset Requirements Telecoms				
CR-CP5LX-1201	Route Telecoms Engineer	Where telephones are present they shall be recovered in working order and returned to be offered to the RCE and or NRT Central Stores (tie cabling shall be recovered and scraped).	High	Phones, posts, and bases removed including cabling.	None identified	None
CR-CP5LX-1202	Route Telecoms Engineer	Where telephones are displayed on a telephone concentrator, these shall be removed from the system.	High	Telephone concentrator updated to reflect the current state of the infrastructure.	None identified	None

Reqt ID	Source Reference	Requirement and Heading	Priority	Acceptance Criteria	Supporting Information	Assumption
		3.11 Network Rail Asset Requirements **Buildings & Structures**				
CR-CP5LX-1211	Buildings & Civils RAM	Any proposed footbridge replacements, or paths, and any associated landscaping, at the level crossing sites have the potential to the adversely affect the surface water drainage networks local in the area. The designs must consider the surface water network and ensure that it is not adversely affected. The infilling of open ditches local to the level crossings should be avoided.	High	Feasibility report to confirm existing water drainage network locally in the area, the effects due to the proposed works and to include proposed works on how to manage the effects. Options to be comprehensive and presented clearly so an informed decision can be made by the B&C RAM	None identified	None

Reqt ID	Source Reference	Requirement and Heading	Priority	Acceptance Criteria	Supporting Information	Assumption
CR-CP5LX-1212	Buildings & Civils RAM	Site investigation where bridges are proposed - Adequate site investigation will be required to model the ground and groundwater conditions at the site design the proposed bridge foundations and to assess the requirements of the access roads referred to (construction depth and flood level and drainage etc). There is the potential for soft and waterlogged ground in these low lying/floodplain areas	High	Borehole to be undertaken to determine existing ground water table in worst case condition and stated clearly in feasibility report. Options on how to manage water level during and after proposed works shall be clearly stated in the feasibility report. Options to be comprehensive and presented clearly so an informed decision can be made by the B&C RAM	None identified	None
CR-CP5LX-1213	Buildings & Civils RAM	Site investigation approach embankment to bridge – differential settlement	High	Location of Geotechnical site investigations shall agreed by be B&C RAM. Feasibility report to include site investigation results and predicted differential settlement so an informed decision can be made by B&C RAM.	None identified	None

Reqt ID	Source Reference	Requirement and Heading	Priority	Acceptance Criteria	Supporting Information	Assumption
CR-CP5LX-1214	Buildings & Civils RAM	Site investigation increased speed of run-off – approach road gradients and increased bound surfacing will require additional attenuation and/or discharge provision.	High	Feasibility report, confirming the existing surface water run-off volume and speed. Options of drainage solution to manage surface water on completion of proposed works shall be stated in the feasibility report. Options to be comprehensive and presented clearly so an informed decision can be made by the B&C RAM	None identified	None
CR-CP5LX-1215	Buildings & Civils RAM	Site investigation approach embankment loading – zone of influence needs to be considered in relation to existing structures and services both on and off the railway.	High	Feasibility report and clearly identify existing embankments and structure in relationship to the zone of influence. Options to be comprehensive and presented clearly so an informed decision can be made by the B&C RAM	None identified	None

Reqt ID	Source Reference	Requirement and Heading	Priority	Acceptance Criteria	Supporting Information	Assumption
CR-CP5LX-1216	Buildings & Civils RAM	Project to identify the existence of any structure near to any proposed bridge construction site and the possible impact on the structure if any due to the works proposed.	High	Feasibility report to clearly identify existing structures and impact. Options to be comprehensive and presented clearly so an informed decision can be made by the B&C RAM	None identified	None
CR-CP5LX-1217	Buildings & Civils RAM	Any new bridge shall be assessed for the requirement of protection for touch potential and for objects being thrown onto the OHLE from both track and stairs/ramps.	High	Feasibility report to include Risk assessment and the potential requirement for parapet and ramp screens. Risk assessment to comprehensive and presented clearly so an informed decision can be made by the B&C RAM	None identified	None
		3.12 Gauging Requirements				
CR-CP5LX-1221	GC/RT5212	Any new structure shall be designed to a full ClearRoute clearance check undertaken to prove normal clearance, as defined in GC/RT5212, for all authorised rolling sock and gauges, has been provided.	High	Output of ClearRoute showing full gauge clearance.	None identified	None

Reqt ID	Source Reference	Requirement and Heading	Priority	Acceptance Criteria	Supporting Information	Assumption
		3.13 Operational Requirements				
CR-CP5LX-1231	Network Rail operational requirement	Where whistle boards are to be removed these shall only be removed once published in the WON.	High	Whistle boards removed from the infrastructure.	None identified	None
CR-CP5LX-1232	Network Rail operational requirement	Where crossings to be removed are fitted with a phone, this shall only be done once it has been published in the WON.	High	Sectional Appendix updated to reflect the current state of the infrastructure.	None identified	None
CR-CP5LX-1233	Network Rail operational requirement	Where crossings to be removed are fitted with a phone, this shall only be done once Network Change has been done to remove them from the Sectional Appendix	High	Approved Network Change	None identified	None

Appendix A – Deliverables

See attached project characterisation spreadsheet detailing the project deliverables.

Appendix B – References

See attached Anglia crossing reduction listing.xls

Appendix C – Glossary

Abbreviation	Description
CRD	Client Requirements Document
DRRD	Detailed Route Requirements Document
IP	Infrastructure Projects
RAM	Route Asset Manager
RRD	Route Requirements Document
WLC	Whole Life Cost
TWAO	Transport & Works Act Order
PRoW	Public Right of Way
ALCRM	All level Crossings Risk Model
WON	Weekly Operating Notice
RCE	Route Communications Engineer
NRT	Network Rail Telecoms
OHLE	OverHead Line Equipment
VSCS	Video Screen Control System
IRJ	Insulated Rail Joint
TSR	Temporary Speed Restriction
PSR	Permanent Speed Restriction

Appendix D – Highways Network Rail is not seeking to change the status of

Appendix D – Highways Network Rail is not seeking to change the status of

Cambridgeshire

Crossing Name	Type	ELR	Mileage	Chainage
Hinxton AHB	AHB	BGK	47	11
Sawston CCTV	CCTV	BGK	50	46
Shelford	CCTV	BGK	52	32
Granhams CCTV	CCTV	BGK	52	64
Chesterton Junction CCTV	CCTV	BGK	57	54
Bannolds AHB	AHB	BGK	62	70
Dimmocks Cote AHB	AHB	BGK	66	25
Sandhill (Littleport)	AHB	BGK	75	35
Littleport MGH	MGH	BGK	75	78
Littleport Bypass AHB	AHB	BGK	76	27
Cherry Hinton High Street CCTV	CCTV	CCH	2	17
Cherry Hinton By Pass CCTV	CCTV	CCH	2	53
Teversham	AHB	CCH	3	44
Fulbourne AHB	AHB	CCH	4	36
Dullingham MGH	MGH	CCH	10	56
Chettisham AHB	AHB	EMP	73	55
Black Bank AHB	AHB	EMP	75	24
Welney Road	AHB	EMP	79	50
Manea MCB	MCB/MB	EMP	80	13
Stonea	MGH	EMP	82	4
Horsemoor AHB	AHB	EMP	84	31
Badgeney Road	AHB	EMP	85	4
March South MCB	MCB/MB	EMP	85	34
March East MCB	MCB/MB	EMP	85	67
Norwood Road	AHB	EMP	86	30
Whitemoor Drove	AHB	EMP	87	30
Burnt House AHB (EMP)	AHB	EMP	91	15
Eastrea AHB	AHB	EMP	93	28
Whittlesea	MGH	EMP	94	68
Ramsey Road	AHB	EMP	95	37
Mile End	AHB	ETN	74	76
Meldreth Road AHB	AHB	SBR	49	37
Shepreth Station AHB	AHB	SBR	49	64
Hauxton Road AHB	AHB	SBR	54	1
Fordham AHB-X	AHB-X	SOB2	4	64
Mill Drove	AHB	SOB2	7	28
Middlemere	AHB	SOB2	8	25
Barway Sidings AHB	AHB	SOB2	9	76

Essex

Crossing Name	Type	ELR	Mileage	Chainage
Roydon Station	CCTV	BGK	20	10
Ickleton Road CCTV	CCTV	BGK	45	75
Cressing ABCL	ABCL	BRA	19	75
White Notley	ABCL	BRA	21	11
Alresford Station CCTV	CCTV	COC	57	68
Coach Road CCTV	CCTV	COC	58	2
Thorrington CCTV	CCTV	COC	59	44
Great Bentley CCTV	CCTV	COC	60	62
Ingatestone MCB	MCB/MB	LTN1	23	39
Chitts Hill CCTV	CCTV	LTN1	49	41
Ardleigh CCTV	CCTV	LTN1	56	5
Manningtree Station CCTV	CCTV	LTN1	59	44
Alexandra Road CCTV	CCTV	MAH	70	38
Mount Bures ABCL	ABCL	SUD	52	60
Rainham	CCTV	TLL	12	60
Pitsea Hall	CCTV	TLL	32	23
Pork Lane	AHB	TWN	66	64
Frinton on Sea CCTV	CCTV	TWN	68	78
Woodham Ferrers	ABCL	WIS	34	8

Hertfordshire

Crossing Name	Type	ELR	Mileage	Chainage
Windmill Lane	CCTV	BGK	14	7
Sawbridgeworth	CCTV	BGK	26	53
Spellbrook	CCTV	BGK	28	17
St Margarets	CCTV	HEB	20	23
Ware	CCTV	HEB	22	22

London Boroughs

Crossing Name	Type	ELR	Mileage	Chainage
Acton Central CCTV	CCTV	BOK5	1	70
Bollo Lane (Kew line) CCTV	CCTV	BOK5	2	63
Highams Park CCTV	CCTV	CJC	8	45
Bollo Lane (Richmond Line) CCTV	CCTV	SAR1	2	63

Norfolk

Crossing Name	Type	ELR	Mileage	Chainage
Hilgay AHB	AHB	BGK	81	39
Denver AHB	AHB	BGK	84	39
Downham Market Bypass AHB	AHB	BGK	85	57
Stow Bardolph CCTV	CCTV	BGK	88	30

Crossing Name	Type	ELR	Mileage	Chainage
Magdalen Road MCB	MCB/MB	BGK	90	73
Watlington Road	CCTV	BGK	91	13
St Germans	AHB	BGK	92	53
Tennison Avenue	MCB/MB	BGK	96	51
Santon	AHB	ETN	88	72
Two Mile Bottom	AHB	ETN	91	16
Croxton AHB	AHB	ETN	96	45
Harling Road MGH	MCBOD	ETN	101	38
Eccles Road MGH	MCBOD	ETN	104	44
Hargham No 1 AHB	AHB	ETN	105	29
Attleborough	MCBOD	ETN	108	18
Spooner Row	MCBOD	ETN	111	27
Browick Road AHB	AHB	ETN	114	32
Intwood AHB	AHB	ETN	119	47
Keswick AHB	AHB	ETN	120	0
Audley End AHB	AHB	LTN1	97	5
Burston AHB	AHB	LTN1	97	42
Gissing AHB	AHB	LTN1	98	56
Tivetshall	AHB	LTN1	100	42
Moulton	AHB	LTN1	101	51
Swainsthorpe	AHB	LTN1	109	52
Middleton Towers TMO	TMOG	MIT	3	10
Chapel Road	MGH	NAY	7	55
Lingwood Station Road MGH	MGH	NAY	8	3
Brundall Station MGH	MGH	NOL	5	62
Strumpshaw	MGH	NOL	7	11
Cantley MGH	MGH	NOL	10	4
Tunstead Market Street	AHB	WHC 1	10	50
Sloley Church Lane AHB	AHB	WHC 1	12	17
Worstead Station AHB	AHB	WHC 1	13	8
Walpole	CCTV	WHC 1	18	67

Suffolk

Crossing Name	Type	ELR	Mileage	Chainage
Elmswell CCTV	CCTV	CCH	37	14
Westerfield	AHB	ESK	72	16
Bealings	ABCL	ESK	75	79
Melton Station	AOCL+B	ESK	80	31
Beversham ABCL	ABCL	ESK	87	15
Chantry Road MCBR	MCBR	ESK	91	2
Albion Street MCB	MCB/MB	ESK	91	7
North Green	AOCL+B	ESK	93	27
Middleton ABCL	ABCL	ESK	94	52

Crossing Name	Type	ELR	Mileage	Chainage
Darsham AHB	AHB	ESK	95	32
Willow Marsh	AOCL+B	ESK	96	9
Bramfield ABCL	ABCL	ESK	99	19
Wenhaston	AOCL+B	ESK	99	52
Westhall	ABCL	ESK	103	47
Brampton AOCL	AOCL+B	ESK	104	45
Weston	AOCL+B	ESK	106	29
Cromwell Road ABCL	ABCL	ESK	107	43
London Road ABCL	ABCL	ESK	107	68
Ingate Street ABCL	ABCL	ESK	108	60
Grove Road ABCL	ABCL	ESK	108	70
Beccles By-Pass	ABCL	ESK	109	60
Dawdys AOCL	AOCL+B	ESK	114	73
Victoria Road	CCTV	ESK	115	61
Gravel Pit ABCL	ABCL	ESK	116	12
Shippea hill	MCBOD	ETN	77	26
Lakenheath MGH	MCBOD	ETN	82	49
Brandon MCB	MCBOD	ETN	86	26
Felixstowe Beach CCTV	CCTV	FED	84	75
Levington AHB	AHB	FEL	80	0
Morston Hall	AHB	FEL	80	65
Thorpe Lane AHB	AHB	FEL	81	41
Trimley CCTV	CCTV	FEL	82	61
Bentley AHB	AHB	LTN1	63	7
Claydon CCTV	CCTV	LTN1	73	47
Baylham	AHB	LTN1	75	17
Stowmarket Station	MCB/MB	LTN1	80	54
Regent Street	CCTV	LTN1	80	68
Haughley AHB	AHB	LTN1	82	71
Mellis AHB	AHB	LTN1	91	34
Oulton Broad North MCB	MCB/MB	NOL	22	1
Knodishall TMOG	TMOG	SIZ	92	49
West House TMOG	TMOG	SIZ	93	32
Saxmundham Road TMOG	TMOG	SIZ	94	2
Leiston TMOG	TMOG	SIZ	95	5
Sizewell TMOG	TMOG	SIZ	95	71

Thurrock

Crossing Name	Type	ELR	Mileage	Chainage
Purfleet	CCTV	TLL	16	7
East Tilbury CCTV	CCTV	TLL	25	12
Mucking	AHB	TLL	26	40
Stanford Le Hope	CCTV	TLL	27	18
Fobbing AHB	AHB	TLL	30	36